

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION**

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**APRIL 28, 2021 DRAFT TO IMPLEMENT
ALTERNATIVE # 2 TO DISCHARGE AND INTAKE PROHIBITIONS**

**ORDER R8-2021-0011
NPDES NO. CA8000403**

**WASTE DISCHARGE REQUIREMENTS
FOR
POSEIDON RESOURCES (SURFSIDE) L.L.C.
HUNTINGTON BEACH DESALINATION FACILITY
ORANGE COUNTY**

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger	Poseidon Resources (Surfside) L.L.C.
Name of Facility	Huntington Beach Desalination Facility
Facility Address	21730 Newland Street
	Huntington Beach, CA 92646
	Orange County
Facility Design Flow	56.69 MGD 12-Month Average Flow 62.5 MGD Maximum Daily Flow

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Reverse Osmosis (RO) concentrate, filter backwash, RO subsequent rinse wastewater, stormwater runoff	33.64389°	-117.97890°	Pacific Ocean

Table 3. Administrative Information

This Order was adopted on:	<Adoption Date>
This Order shall become effective on:	<Effective Date>
This Order shall expire on:	<Expiration Date>
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with California Code of Regulations, title 23, chapter 9 and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	180 days prior to the Order expiration date
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Santa Ana Region have classified this discharge as follows:	Major

I, Hope A. Smythe, Executive Officer, do hereby certify that this Order. R8-2021-0011 with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on XXX.

Hope A. Smythe, Executive Officer

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I. FACILITY INFORMATION

The Huntington Beach Desalination Facility (Facility) will be located at 21730 Newland Street, adjacent to the AES Huntington Beach Generating Station (AES HBGS), in Huntington Beach, CA. The Facility will produce an annual average of approximately 50 million gallons per day (MGD) of potable drinking water. Poseidon Resources (Surfside) LLC (Discharger) will be the owner and operator of the Facility.

The Facility will discharge into the Pacific Ocean via the existing AES HBGS discharge pipeline. AES HBGS discharges into the same pipe as the Facility will but is regulated separately under Order R8-2014-0076, NPDES No. CA0001163. The Discharger plans to use the AES HBGS intake and discharge systems for the Facility's intake and discharge, but the Discharger must modify these systems to reduce intake and mortality to all forms of marine life before beginning operation. AES HBGS is anticipated to terminate the use of once-through cooling water on or before December 31, 2023, and as such the Facility will not operate in a co-located mode or commingle its discharge with AES HBGS. The Facility will operate in a permanent stand-alone mode after AES HBGS ceases their use of once-through cooling water. This Order applies to operations of the Facility in a stand-alone mode and does not authorize the discharge of waste or intake of seawater for operations in a co-located mode.

Additional information describing the Facility is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board), finds:

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implements regulations adopted by the United States Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the U.S. at the discharge location described in Table 2 subject to the WDRs in this Order. This Order includes the Water Code section 13142.5, subdivision (b) (section 13142.5(b)) determination for the Facility. Attachments A through K (inclusive of Attachments G.1 to G.5) are incorporated into this Order. References to the Order include the Order and its attachments.
- B. Background and Rationale for Requirements.** The Santa Ana Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and the rationale for the requirements in this Order, is incorporated into and constitutes the findings for this Order.

- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections II.E, IV.B, and VI.A.2, VI.C.2-5 are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Notification of Interested Parties.** The Santa Ana Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and of its intent to make a Water Code section 13142.5(b) determination with conditions and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet (Attachment F).
- E. Water Code Section 13142.5(b) Conditional Determination.** Water Code section 13142.5(b) requires that for each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. Chapter III.M.2 of the Water Quality Control Plan for the Ocean Waters of California (Ocean Plan) provides the framework that regional water boards must use to evaluate whether a desalination facility complies with Water Code section 13142.5(b). The Santa Ana Water Board is required to analyze a range of feasible alternatives for best available site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life.

The Order implements the Water Code section 13142.5(b) determination set forth in Attachment G for the Facility in accordance with Ocean Plan requirements. In making the Water Code section 13142.5(b) determination, the Santa Ana Water Board evaluated a range of alternatives proposed by the Discharger for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life and then determined the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life.

The Water Code section 13142.5(b) conditional determination is based upon available information and conditioned on the Discharger satisfying the requirements of the Marine Life Mitigation Plan Schedule (MLMP Schedule) in Attachment K. If the Discharger does not satisfy the requirements of the MLMP Schedule, a new Water Code section 13142.5(b) determination to select an appropriate mitigation project for the Facility will be required consistent with the Ocean Plan chapter III.M.2.a.(5). (See Attachment G, Finding 5.) In addition, any potential future expansion, including any design change or operational change to the Facility that could increase the intake or mortality of marine life beyond that which is approved under this Order will require a Water Code 13142.5(b) determination in accordance with the Ocean Plan requirements.

In its analysis for the Water Code section 13142.5(b) determination, the Santa Ana Water Board considered the impacts to public trust resources and minimized those impacts by requiring the Discharger to use the best available site, design, technology, and mitigation measures feasible. The Order also implements the Ocean Plan's applicable water quality objectives and prohibitions and includes requirements that protect public trust uses (including recreation, navigation, fishing, and marine habitat).

- F. California Environmental Quality Act (CEQA).** The action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21100 et seq.) pursuant to Water Code section 13389. The Water Code section 13142.5(b) determination set forth in Attachment G to this Order is issued under state law authority only and is a discretionary approval subject to compliance with CEQA. The Santa Ana Water Board is a responsible agency for purposes of CEQA.

The City of Huntington Beach, acting as the lead agency, prepared a Final Subsequent Environmental Impact Report (2010 FSEIR) (State Clearinghouse No. 2001051092) for the Facility and certified it on September 7, 2010. On October 19, 2017 the California State Lands Commission, acting as a responsible agency, certified a Final Supplemental Environmental Impact Report (2017 FSEIR) (State Clearinghouse No. 200051092).

To comply with Water Code section 13142.5(b) and the Ocean Plan, the Discharger made modifications to the diffuser design that was evaluated in the 2017 FSEIR. The Santa Ana Water Board prepared an Addendum to the 2010 FSEIR and the 2017 FSEIR to address the changes to the diffuser design. The Santa Ana Water Board finds that the changes to the diffuser design, as described in the Addendum, do not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects that would require the preparation of a subsequent or supplemental environmental impact report under CEQA Guidelines sections 15162 or 15163.

The Santa Ana Water Board independently considered the environmental effects of the Facility as described in the 2010 FSEIR, the 2017 FSEIR, and the Addendum. The Santa Ana Water Board also considered the environmental effects of the Ocean Plan requirements described in the State Water Resources Control Board's Final Substitute Environmental Documentation for the Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-Substantive Changes (May 6, 2015).

An action challenging the 2017 FSEIR was initiated. On April 8, 2021, the California Court of Appeal issued a decision upholding the 2017 FSEIR. The time to challenge the appellate decision has not run, so the 2017 FSEIR may be subject to further review. The Santa Ana Water Board assumes that the 2017 FSEIR complies with the provisions of CEQA, and this Order constitutes permission for the Discharger to proceed at its own risk pending final determination of the action. (Pub. Resources Code, § 21167.3, subd. (b); CEQA Guidelines, § 15233, subd. (b).)

Further details of CEQA compliance are set forth in the Fact Sheet (Attachment F).

- G. Executive Officer Delegation of Authority.** The Santa Ana Water Board by prior resolution has delegated all matters that may be legally delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. (Resolution R8-2019-0056.) Consistent with the delegation, the Executive Officer is authorized to act on the Santa Ana Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223 or this Order explicitly states otherwise.
- H. Consideration of Public Comment.** The Santa Ana Water Board, in a public meeting, heard and considered all comments pertaining to the discharge and the conditional Water Code

section 13142.5(b) determination. Details of the Public Hearing are provided in the Fact Sheet (Attachment F).

- I. Human Right to Water.** It is the “established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.” (Water Code, § 106.3, subd. (a).) All relevant state agencies shall consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when they are pertinent to these uses. (*Id.*, § 106.3, subd. (b).) This state policy does not directly apply to this Order as this is a permitting action. The Santa Ana Water Board, however, has adopted the human right to water as a core value and resolved that it will continue to consider the human right to water in all activities that could affect existing or potential sources of drinking water, including permitting actions. (Santa Ana Water Board Resolution R8-2019-0078.) In adopting this Order, the Santa Ana Water Board has considered the human right to water policy. (See Fact Sheet (Attachment F), § III.E.3.)

THEREFORE, IT IS HEREBY ORDERED, that this Order supersedes and rescinds Order R8-2012-0007, except for purposes of enforcement of the previous order, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Santa Ana Water Board from taking enforcement action for violations of the previous order.

III. DISCHARGE PROHIBITIONS

- A.** Discharge of waste from any point other than Discharge Point 001 (EFF-001), unless specifically authorized by this order or separate WDRs, is prohibited.
- B.** The discharge of waste other than concentrated seawater, filter backwash, reverse osmosis (RO) membrane subsequent rinse wastewater, and stormwater runoff from the Facility, except for filtered pretreated water, dechlorinated off-spec product water, and/or dechlorinated final product water during startup and maintenance operations, is prohibited.
- C.** The final effluent discharge from the Facility through Discharge Point 001 in excess of a 12-Month Average Flow of 56.69 MGD or a maximum daily peak flow of 62.5¹ MGD is prohibited. During initial start-up operations and/or temporary onsite maintenance operations the total Facility discharge flows through Discharge Point 001, (EEF-001), including temporary discharges of filtered pretreated water, discharges of off-spec dechlorinated product water, dechlorinated final product water and/or seawater, in excess of a daily peak flow of 126.7 MGD are prohibited.
- D.** The discharge of waste sludge or other solids generated as the result of Facility operations directly to the ocean, or into a waste stream that discharges to the ocean, is prohibited.
- E.** The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

¹ Listed discharge flows are for non-storm conditions. Onsite storm event of 1.67 MGD may occur during storm periods in addition to the discharge flows.

- F. The discharge of any substances in concentrations toxic to animal or plant life in the receiving water after initial dilution is prohibited.
- G. The discharge of waste prior to the installation and operation of a multiport linear diffuser in accordance with the requirements of this Order and the construction schedule in the Addendum is prohibited. (See Attachment G, Finding 28)
- H. The discharge of waste is only authorized for stand-alone operations. The discharge of waste for co-located operations is prohibited.
- I. The discharge of waste under this Order is prohibited unless and until (1) the Discharger has submitted the supplemental plans for the Final MLMP in accordance with the MLMP Schedule (Attachment K); (2) the Santa Ana Water Board has approved the Discharger's supplemental plans; (3) the Discharger has obtained all permits and other governmental approvals necessary to implement all components of the approved mitigation project (including the components included in supplemental plans required under the MLMP Schedule (Attachment K)); and (4) the Discharger has begun dredging the Bolsa Chica inlet in accordance with the schedule approved by the Board (Attachment K, Table K-1, Task 1.A.viii).

IV. EFFLUENT LIMITATIONS, INTAKE SPECIFICATIONS, AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001 (EFF-001)

1. Final Effluent Limitations – Discharge Point 001 (EFF-001)

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point EFF-001, with compliance measured at Monitoring Location M-001, as described in the Monitoring and Reporting Program (MRP), Attachment E.

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Oil and Grease	mg/L	25	40	75	---	---
	lbs/day	13,000	20,900	---	---	---
Total Suspended Solids	mg/L	60	---	---	---	---
	lbs/day	31,300	---	---	---	---
Settleable Solids	ml/L	1.0	1.5	3.0	---	---
Turbidity	NTU	75	100	225	---	---
Arsenic	µg/L	---	---	1,200	470	83
	lbs/day	---	---	---	240	43
Cadmium	µg/L	---	---	160	64	16
	lbs/day	---	---	---	33	8.3
Chromium (Hexavalent)	µg/L	---	---	320	130	32
	lbs/day	---	---	---	67	17

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Copper	µg/L	---	---	450	160	18
	lbs/day	---	---	---	84	9.4
Lead	µg/L	---	---	320	130	32
	lbs/day	---	---	---	67	17
Mercury	µg/L	---	---	6.4	2.6	0.63
	lbs/day	---	---	---	1.3	0.33
Nickel	µg/L	---	---	800	320	80
	lbs/day	---	---	---	170	42
Silver	µg/L	---	---	110	42	8.8
	lbs/day	---	---	---	22	4.6
Zinc	µg/L	---	---	3,100	1,200	200
	lbs/day	---	---	---	600	100
Cyanide	µg/L	---	---	160	64	16
	lbs/day	---	---	---	33	8.3
Total Chlorine Residual	µg/L	---	---	960	130	32
	lbs/day	---	---	---	67	17
Chronic Toxicity	TST Pass or Fail	---	---	---	P ⁴	---
Ammonia Nitrogen	µg/L	---	---	96,000	38,000	9,600
	lbs/day	---	---	---	20,000	5,000
PCBs	ug/l	3.0E-04	--	--	--	--
	lbs/day	1.6E-04	--	--	--	--
Phenolic Compounds (non-chlorinated) ¹	µg/L	---	---	4,800	1,900	480
	lbs/day	---	---	---	1,000	250
Chlorinated Phenolics ²	µg/L	---	---	160	64	16
	lbs/day	---	---	---	33	8.3

1 Non-chlorinated phenolic compounds represent the sum of 2,4-dimethylphenol, 4,6-dinitro-2- methylphenol, 2,4-dinitrophenol, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 4-nitrophenol, and phenol.

2 Chlorinated phenolic compounds represent the sum of 4-chloro-3-methylphenol, 2-chlorophenol, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol.

b. Chronic Toxicity. The chronic toxicity limitation is expressed as a null hypothesis (H_0) and regulatory management decision (b value) of 0.75 for the chronic toxicity methods in Attachment E – Monitoring and Reporting Program. The null hypothesis for the effluent discharge from the Facility is:

$$H_0: \text{Mean response (6.25\% effluent)} \leq 0.75 \text{ mean response (control)}$$

Results obtained from a single-concentration chronic toxicity test shall be analyzed using the Test of Significant Toxicity hypothesis testing approach (EPA 833-R-10-003, 2010) in Attachment E – Monitoring and Reporting Program. Compliance with

this chronic toxicity limitation is demonstrated by rejecting the null hypothesis, resulting in a “Pass” or “P”, as described in section V.A. of Attachment E.

- c. **Salinity.** The salinity of the effluent discharged from the Facility shall not exceed an average daily concentration of 65.5 parts per thousand (ppt).
- d. **pH.** The pH of the wastes discharged shall be within the range of 6.0 to 9.0 pH units at all times.
- e. **Temperature.** The temperature of wastes discharged shall not exceed the natural temperature of the receiving waters, as measured by the ocean intake water temperature, by more than 20°F.

2. Performance Goals – Discharge Point 001 (EFF- 001)

- a. Parameters that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives, or for which reasonable potential to cause or contribute to an exceedance of water quality objectives cannot be determined, are assigned performance goals. Performance goal parameters shall be monitored at Monitoring Location M-001. The performance goals in Table 6 below are not water quality-based effluent limitations (WQBELs) and are not enforceable.

Table 5. Performance Goals

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Selenium	µg/L	--	--	2.4E+03	9.6E+02	2.4E+02
	lbs/day	--	--	1.3E+03	5.0E+02	1.3E+02
Endosulfan	µg/L	--	--	4.3E-01	2.9E-01	1.4E-01
	lbs/day	--	--	2.3E-01	1.5E-01	7.5E-02
Endrin	µg/L	--	--	9.6E-02	6.4E-02	3.2E-02
	lbs/day	--	--	5.0E-02	3.3E-02	1.7E-02
HCH	µg/L	--	--	1.9E-01	1.3E-01	6.4E-02
	lbs/day	--	--	1.0E-01	6.7E-02	3.3E-02
Acrolein	µg/L	3.5E+03	--	--	--	--
	lbs/day	1.8E+03	--	--	--	--
Antimony	µg/L	1.9E+04	--	--	--	--
	lbs/day	1.0E+04	--	--	--	--
Bis(2-chloroethoxy) Methane	µg/L	7.0E+01	--	--	--	--
	lbs/day	3.7E+01	--	--	--	--
Bis(2-chloroisopropyl) ether	µg/L	1.9E+04	--	--	--	--
	lbs/day	1.0E+04	--	--	--	--
Chlorobenzene	µg/L	9.1E+03	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Chromium (III)	lbs/day	4.8E+03	--	--	--	--
	µg/L	3.0E+06	--	--	--	--
	lbs/day	1.6E+06	--	--	--	--
Di-n-butyl Phthalate	µg/L	5.6E+04	--	--	--	--
	lbs/day	2.9E+04	--	--	--	--
Dichlorobenzenes	µg/L	8.2E+04	--	--	--	--
	lbs/day	4.3E+04	--	--	--	--
Diethyl Phthalate	µg/L	5.3E+05	--	--	--	--
	lbs/day	2.8E+05	--	--	--	--
Dimethyl Phthalate	µg/L	1.3E+07	--	--	--	--
	lbs/day	6.8E+06	--	--	--	--
4,6-dinitro-2-methylphenol	µg/L	3.5E+03	--	--	--	--
	lbs/day	1.8E+03	--	--	--	--
2,4-dinitrophenol	µg/L	6.4E+01	--	--	--	--
	lbs/day	3.3E+01	--	--	--	--
Ethylbenzene	µg/L	6.6E+04	--	--	--	--
	lbs/day	3.4E+04	--	--	--	--
Fluoranthene	µg/L	2.4E+02	--	--	--	--
	lbs/day	1.3E+02	--	--	--	--
Hexachlorocyclopentadiene	ug/l	9.3E+02	--	--	--	--
	lbs/day	4.8E+02	--	--	--	--
Nitrobenzene	µg/L	7.8E+01	--	--	--	--
	lbs/day	4.1E+01	--	--	--	--
Thallium	µg/L	3.2E+01	--	--	--	--
	lbs/day	1.7E+01	--	--	--	--
Toluene	µg/L	1.4E+06	--	--	--	--
	lbs/day	7.1E+05	--	--	--	--
Tributyltin	µg/L	2.2E-02	--	--	--	--
	lbs/day	1.2E-02	--	--	--	--
1,1,1-trichloroethane	µg/L	8.6E+06	--	--	--	--
	lbs/day	4.5E+06	--	--	--	--
Acrylonitrile	µg/L	1.6E+00	--	--	--	--
	lbs/day	8.3E-01	--	--	--	--
Aldrin	µg/L	3.5E-04	--	--	--	--
	lbs/day	1.8E-04	--	--	--	--
Benzene	µg/L	9.4E+01	--	--	--	--
	lbs/day	4.9E+01	--	--	--	--
Benzidine	µg/L	1.1E-03	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Beryllium	lbs/day	5.8E-04	--	--	--	--
	µg/L	5.3E-01	--	--	--	--
Bis(2-chloroethyl) Ether	lbs/day	2.8E-01	--	--	--	--
	µg/L	7.2E-01	--	--	--	--
Bis(2-ethylhexyl) Phthalate	lbs/day	3.8E-01	--	--	--	--
	µg/L	5.6E+01	--	--	--	--
Carbon Tetrachloride	lbs/day	2.9E+01	--	--	--	--
	µg/L	1.4E+01	--	--	--	--
Chlorodane	lbs/day	7.5E+00	--	--	--	--
	µg/L	3.7E-04	--	--	--	--
Chlorodibromethane	lbs/day	1.9E-04	--	--	--	--
	µg/L	1.4E+02	--	--	--	--
Chloroform	lbs/day	7.2E+01	--	--	--	--
	µg/L	2.1E+03	--	--	--	--
DDT	lbs/day	1.1E+03	--	--	--	--
	µg/L	2.7E-03	--	--	--	--
1,4-dichlorobenzene	lbs/day	1.4E-03	--	--	--	--
	µg/L	2.9E+02	--	--	--	--
3,3'-dichlorobenzidine	lbs/day	1.5E+02	--	--	--	--
	µg/L	1.3E-01	--	--	--	--
1,2-dichloroethane	lbs/day	6.8E-02	--	--	--	--
	µg/L	4.5E+02	--	--	--	--
1,1-dichloroethylene	lbs/day	2.3E+02	--	--	--	--
	µg/L	1.4E+01	--	--	--	--
Dichlorobromomethane	lbs/day	7.5E+00	--	--	--	--
	µg/L	9.9E+01	--	--	--	--
Dichloromethane	lbs/day	5.2E+01	--	--	--	--
	µg/L	7.2E+03	--	--	--	--
1,3-dichloropropene	lbs/day	3.8E+03	--	--	--	--
	µg/L	1.4E+02	--	--	--	--
Dieldrin	lbs/day	7.4E+01	--	--	--	--
	µg/L	6.4E-04	--	--	--	--
2,4-dinitrotoluene	lbs/day	3.3E-04	--	--	--	--
	µg/L	4.2E+01	--	--	--	--
	lbs/day	2.2E+01	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
1,2-diphenylhydrazine	µg/L	2.6E+00	--	--	--	--
	lbs/day	1.3E+00	--	--	--	--
Halomethanes	µg/L	2.1E+03	--	--	--	--
	lbs/day	1.1E+03	--	--	--	--
Heptachlor	µg/L	8.0E-04	--	--	--	--
	lbs/day	4.2E-04	--	--	--	--
Heptachlor Epoxide	µg/L	3.2E-04	--	--	--	--
	lbs/day	1.7E-04	--	--	--	--
Hexachlorobenzene	µg/L	3.4E-03	--	--	--	--
	lbs/day	1.8E-03	--	--	--	--
Hexachlorobutadiene	µg/L	2.2E+02	--	--	--	--
	lbs/day	1.2E+02	--	--	--	--
Hexachloroethane	µg/L	4.0E+01	--	--	--	--
	lbs/day	2.1E+01	--	--	--	--
Isophorone	µg/L	1.2E+04	--	--	--	--
	lbs/day	6.1E+03	--	--	--	--
N-nitrosodimethylamine	µg/L	1.2E+02	--	--	--	--
	lbs/day	6.1E+01	--	--	--	--
N-nitrosodi-N-propylamine	µg/L	6.1E+00	--	--	--	--
	lbs/day	3.2E+00	--	--	--	--
N-nitrosodiphenylamine	µg/L	4.0E+01	--	--	--	--
	lbs/day	2.1E+01	--	--	--	--
PAHs	µg/L	1.4E-01	--	--	--	--
	lbs/day	7.3E-02	--	--	--	--
TCDD equivalents	µg/L	6.2E-08	--	--	--	--
	lbs/day	3.3E-08	--	--	--	--
1,1,2,2-tetrachloroethane	µg/L	3.7E+01	--	--	--	--
	lbs/day	1.9E+01	--	--	--	--
Tetrachloroethylene	µg/L	3.2E+01	--	--	--	--
	lbs/day	1.7E+01	--	--	--	--
Toxaphene	µg/L	3.4E-03	--	--	--	--
	lbs/day	1.8E-03	--	--	--	--
Trichloroethylene	µg/L	4.3E+02	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
1,1,2-trichloroethane	lbs/day	2.3E+02	--	--	--	--
	µg/L	1.5E+02	--	--	--	--
	lbs/day	7.8E+01	--	--	--	--
2,4,6-trichlorophenol	µg/L	4.6E+00	--	--	--	--
	lbs/day	2.4E+00	--	--	--	--
Vinyl Chloride	µg/L	5.8E+02	--	--	--	--
	lbs/day	3.0E+02	--	--	--	--

B. Intake Specifications

The intake of seawater shall comply with the following specifications:

1. The new intake structure shall be completely constructed and operable in accordance with the requirements of this Order and the construction schedule described in the Addendum before Discharger begins intaking seawater;
2. The intake of seawater must not exceed 106.7 MGD as a 12-month average;
3. Surface water intakes must be screened at the onset of the intake of seawater. Screens must be functional while the Facility is withdrawing seawater;
4. To reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in.) or smaller slot size wedgewire screen when the Facility is withdrawing seawater. The wedgewire screens must be rotating brush-cleaned screens composed of stainless steel;
5. To minimize impingement, the through-screen velocity at the onset of the surface water intake must not exceed 0.15 meters per second (0.5 feet per second) at any time;
6. The intake of seawater shall be reduced to the minimum volume necessary to maintain Facility operations;
7. To the maximum extent practicable, in-plant recycling of waste streams shall be maximized before intaking additional seawater;
8. The Discharger shall cease intake of seawater except when intake of seawater is necessary to maintain Facility operations or to comply with this Order;
9. Chemical (i.e. chlorine) and heat treatment of the offshore intake is prohibited; and
10. Pump operations for intake of seawater shall minimize abrupt changes in flow velocity.

11. The intake of seawater is only authorized for stand-alone operations. The intake of seawater for co-located operations is prohibited.
12. The intake of seawater authorized in this Order is prohibited unless and until (1) the Discharger has submitted the supplemental plans for the final MLMP in accordance with the MLMP Schedule (Attachment K); (2) the Santa Ana Water Board has approved the Discharger's supplemental plans; (3) the Discharger has obtained all permits and other governmental approvals necessary to implement all components of the approved mitigation project (including the components included in supplemental plans required under the MLMP Schedule (Attachment K)); and (4) the Discharger has begun dredging of the Bolsa Chica inlet in accordance with the schedule approved by the Board (Attachment K, Table K-1, Task 1.A.viii).

C. Recycling Specifications – Not Applicable

D. Discharge Specifications

The discharge of effluent from the Facility shall comply with the following:

1. Wastewater from the Facility must be discharged in a manner that provides sufficient initial dilution to comply with the limitations and specifications contained in sections IV and V of this Order and in compliance with the discharge prohibitions contained in section III of this Order.
2. Waste management systems that discharge to the Pacific Ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
3. Waste discharged to the Pacific Ocean must be essentially free of:
 - a. Material that is floatable or will become floatable upon discharge;
 - b. Settleable materials or substances that may form sediments which will degrade benthic communities or other aquatic life;
 - c. Substances which will accumulate to toxic levels in marine waters, sediments, or biota;
 - d. Substances that significantly decrease the natural light to benthic communities and other marine life; and,
 - e. Materials that result in aesthetically undesirable discoloration of the ocean surface.

E. Stormwater Discharge Specifications

The Discharger shall provide certification to the Santa Ana Water Board that industrial stormwater is managed by internal drainage systems at the Facility, where storm water is captured, treated, and discharged with the treated wastewater regulated under this Order. The certification shall be included in the Stormwater Management Plan required below:

1. Stormwater Management Plan:

The Discharger shall file with the Santa Ana Water Board, within 180 days prior to the start of construction, a Stormwater Management Plan for discharges of stormwater associated with industrial activities excluding construction activities at its Facility.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The receiving water limitations set forth below for ocean waters are based on water quality objectives contained in the Ocean Plan and are a required part of this Order. The discharge of waste from the Facility shall not cause or contribute to a violation of these limitations in the Pacific Ocean.

1. Salinity

The discharge shall not cause or contribute to an exceedance of a daily maximum of 2.0 parts per thousand (ppt) above natural background salinity throughout the water column with no vertical limit, measured no further than 100 meters (328 feet) horizontally from the Discharge Point 001 (EFF-001). Natural background salinity, as measured at a reference location that is representative of the salinity resulting from natural processes without human influence at the discharge location, will be used to evaluate compliance with the salinity receiving water limitation. The reference location shall be without human influence including wastewater outfalls and brine discharges. Within 90 days of the effective date of this Order, the Discharger shall submit for the Santa Ana Water Board's review and acceptance a proposed reference location representative of natural background salinity.

2. Chemical, Physical, and Biological Limitations

Discharges from the Facility to the receiving water shall not cause or significantly contribute to a violation of the following water quality objectives established by the Ocean Plan. Compliance with these objectives shall be determined by samples collected at stations representative of the area within the waste field (as described in the MRP, Attachment E), where initial dilution is completed.

a. Bacterial Characteristics

i. Water-Contact Standards:

- (a) Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is farther from the shoreline, and in areas outside this zone used for water-contact sports, as determined by the Santa Ana Water Board, but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column.

- (1) Fecal Coliform

- (i) A 30-day geometric mean, calculated based on the five most recent samples from each site, shall not exceed 200 per 100 mL; and
 - (ii) A single sample maximum shall not exceed 400 per 100 mL.
- (2) Enterococci
 - (i) A 6-week rolling geometric mean shall not exceed 30 colony forming units (cfu) per 100 mL, calculated weekly; and
 - (ii) A statistical threshold value of 110 cfu per 100 mL shall not be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.
- (b) The “Initial Dilution Zone” of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards. Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards.
- ii. Shellfish Harvesting Standards:

At all areas where shellfish may be harvested for human consumption, as determined by the Santa Ana Water Board, the median total coliform density shall not exceed 70 per 100 mL throughout the water column, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

b. Physical Characteristics

- i. Floating particulates and grease and oil shall not be visible.
- ii. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.
- iii. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.
- iv. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.
- v. Trash from the discharge shall not be present in ocean waters, along shorelines, or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

c. Chemical Characteristics

- i. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.
- ii. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- iii. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- iv. The concentration of substances set forth in Table 3 of the Ocean Plan shall not be increased in marine sediments to levels that would degrade indigenous biota.
- v. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.
- vi. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.
- vii. Numerical water quality objectives established in Table 3 of the Ocean Plan shall not be exceeded as a result of discharges from the Facility through Discharge Point EFF-001 (as computed using an applicable Dm).

d. Biological Characteristics

- i. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.
- ii. The natural taste, odor, and, color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
- iii. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

e. Radioactivity

- i. Discharge of radioactive waste, which meets the definition of "pollutant" at 40 CFR 122.2, shall not degrade marine life.
- ii. The radioactivity in the receiving waters shall not exceed limits specified in title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations (CCR). The reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Facility shall be evaluated to ensure it can be designed and built to reduce infrastructure vulnerability to extreme wet weather events, flooding, storm surges, and projected sea level rise resulting from current and future impacts associated with climate change.
3. Minor Modification of Permits: Upon the consent of the Discharger, the Executive Officer may modify the Permit to make the corrections or allowances for changes in the permitted activity listed under 40 CFR 122.63(a) through (g), without following the procedures of 40 CFR 124. Any permit modification not processed as a minor modification under 40 CFR 122.63 must be made for cause and comply with public participation requirements set forth in 40 CFR part 124, including circulation of a draft permit and public notice as required in 40 CFR 122.62. (40 CFR 122.63)
4. This Order expires on DATE, 20XX, after which, the terms and conditions of this Order are automatically continued pending issuance of a new Order, provided that all requirements of U.S. EPA's NPDES regulations at title 40 of the Code of Federal Regulations (CFR) part 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.
5. The Water Code section 13142.5(b) determination does not expire and shall remain in effect unless (1) the Discharger fails to satisfy the requirements of the MLMP Schedule in Attachment K and thus triggers the condition in Finding 5 of Attachment G, or (2) the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of marine life, consistent with the Ocean Plan definition of an expanded facility. If the former occurs, the Discharger would need to submit a request for a new Water Code section 13142.5(b) determination for mitigation under Ocean Plan, chapter III.M.2.a.(5); if the latter occurs, the Discharger would need to submit a request for a new Water Code section 13142.5(b) determination for an expanded facility as required by the Ocean Plan chapter III.M.1.b.(2) and III.M.2.a.(1).
6. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:
 - a. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
 - b. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, or receiving water limitation of this

Order, which may endanger health or the environment, the Discharger shall notify the Santa Ana Water Board by telephone (951) 782-4130 within 24 hours of having knowledge of such noncompliance and shall confirm this notification in writing within five days, unless the Santa Ana Water Board waives written confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence, including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

- c. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Water Code section 13050.
- d. The Discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.
- e. This Order may be modified, revoked and reissued, or terminated for causes including, but not limited to, the following:
 - i. Violation of any term or condition of this Order;
 - ii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.
- f. If an effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for that pollutant in this Order, this Order may be modified or revoked and reissued to conform to the effluent standard or discharge prohibition.
- g. The provisions of this Order are severable, and if any provisions of this Order or the application of any provision of this Order to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.
- h. The Discharger shall maintain a full and complete copy of this Order at the Facility so that it is available to site operating personnel, Santa Ana Water Board, and the State Water Resources Control Board (State Water Board) at all times. Key operating personnel shall be familiar with its content.
- i. Collected screenings, sludge, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Santa Ana Water Board's Executive Officer.

- j. In the event of any change in control or ownership of land or waste discharge facility presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Santa Ana Water Board.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order. This MRP may be modified by the Executive Officer at any time during the term of this Order and may include an increase in the number of parameters to be monitored, the frequency of the monitoring, or the number and size of samples to be collected. Any increase in the number of parameters to be monitored, the frequency of the monitoring, or the number and size of samples to be collected may be reduced back to the levels specified in the original MRP at the discretion of the Executive Officer.

C. Special Provisions

3. Reopener Provisions

- a. This Order may be reopened to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if the Discharger fails to satisfy the requirements of the MLMP Schedule in Attachment K and thus triggers the condition in Finding 5 of Attachment G or if the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in this Water Code section 13142.5(b) determination. This Order may be reopened at any time for modification of provisions governing compliance with the receiving water limitation for salinity as set forth in Ocean Plan, chapter III.M.3.
- b. This Order will be reopened to address any changes in state or federal statutes, plans, policies, or regulations that would affect the water quality requirements for the discharges.
- c. This Order may be reopened for modification to include an effluent limitation, if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an exceedance of any water quality objective in Table 3 of the Ocean Plan.
- d. This Order may be reopened and modified in accordance with the requirements set forth at 40 CFR parts 122 and 124 to include the appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information or to implement any EPA-approved new state water quality standards applicable to effluent toxicity.
- e. This Order may be reopened for modification or revocation and reissuance as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not

limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be added to this Order as a result of the special condition monitoring data.

- f. This Order will be reopened to address physical or operational alterations to the permitted facility that would affect the requirements for discharges from the facility.
- g. The MRP (Attachment E) may be modified by the Executive Officer to enable the Discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a cost-effective monitoring design and to best utilize the pooled scientific resources of the region.

During these coordinated monitoring efforts, the Discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of wastewater discharges to the Southern California Bight. In that event, the Santa Ana Water Board shall notify the Discharger in writing that the request to perform the receiving water sampling and analytical effort defined in section IV of this MRP is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollutant sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the Discharger's monitoring effort. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section IV of the MRP shall approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the Santa Ana Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined in writing by the Santa Ana Water Board in consultation with the Discharger. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

- h. If the Discharger complies with the following conditions to the satisfaction of the Santa Ana Water Board, this Order will be reopened to consider the removal of the discharge and intake prohibitions in sections III.I and IV.B.12, respectively:
 - i. The Discharger must submit all supplemental plans beginning with the Communication and Coordination Plans and up through and including the 60% design plans for each of the mitigation projects in accordance with Tasks 1)A-B, 2)A-B -and D-E, 3)A-B, 4)A-B, and 5)A-B in Table K-1 of Attachment K, in consultation with Santa Ana Water Board staff and staff of the agencies responsible for issuing permits for the mitigation projects. These supplemental plans are necessary prerequisites for the Discharger to develop more reliable timelines and cost estimates for the mitigation projects. The

Discharger must receive Executive Officer approval of the supplemental plans up through and including the 60% design plans

- ii. The Discharger must develop estimated timelines based on the approved 60% design plan for each of the mitigation projects that includes all major steps in the planning, permitting, construction, implementation, operation and maintenance, and monitoring and reporting for the operational life of the Facility, plus the period of time that the mitigation projects will be required to extend beyond the operational life of the Facility. The Discharger must develop the estimated timelines in consultation with Santa Ana Water Board staff and staff of the agencies responsible for issuing permits for the mitigation projects.
- iii. The Discharger must develop cost estimates based on the approved 60% design plan for the planning, permitting, construction, implementation, operation and maintenance, and monitoring and reporting for the operational life of the Facility of each of the mitigation projects.
- iv. Upon the approval of the cost estimates by the neutral third party used for the Discharger's financing, the Discharger must submit the estimated timelines, cost estimates, the neutral third party's approval letter, and proposals for stipulated penalties and financial assurances to the Santa Ana Water Board for approval.
 - (a) The proposal for stipulated penalties must include an agreement by the Discharger to pay a daily penalty for each missed deadline remaining in Attachment K after the conditions above have been satisfied. The amounts of the stipulated penalties must approximate the Discharger's corresponding estimated costs of meeting missed deadlines. To minimize transaction costs associated with implementing the stipulated penalty, the proposal must include a mechanism to efficiently resolve any disputes between the Santa Ana Water Board and the Discharger regarding the applicability of the stipulated penalty.
 - (b) The proposal for financial assurances must include (1) the cost estimates for all outstanding planning, permitting, construction, operation and maintenance, and monitoring and reporting of the mitigation projects, including operation and maintenance of the mitigation projects for the period of time after the Facility ceases operations that is necessary to satisfy the Discharger's mitigation credit obligations, (2) a substantial contingency amount for future mitigation project design refinements and changes and cost overruns, and (3) a substantial additional incentive equal to 5% of Facility construction and operation and maintenance costs to be returned to the Discharger once the Santa Ana Water Board determines that all of the mitigation projects are meeting their approved performance standards and success criteria. The financial assurances must be available to the Santa Ana Water Board.

- v. The Santa Ana Water Board will consider the estimated timelines, cost estimates, proposed stipulated penalties, and proposed financial assurances. If the Santa Ana Water Board approves these items, with or without any modifications, the Santa Ana Water Board will remove the intake and discharge prohibitions and replace the prohibitions with permit requirements that implement the following:
- (a) Enforceable deadlines for planning, permitting, construction, and implementation of each of the mitigation projects based on the Discharger's approved estimated timelines;
 - (b) Daily stipulated penalties for each missed deadline in accordance with the approved proposal for stipulated penalties;
 - (c) Financial assurances available to the Santa Ana Water Board in accordance with the approved proposal for financial assurances; and
 - (d) The Discharger's commencement of the dredging of the Bolsa Chica inlet within 12 months of the date at which the Facility debt is closed and the proceeds are issued to the Discharger to construct the Facility.

4. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. Toxicity Reduction Requirements

- i. The Discharger shall conduct chronic toxicity monitoring of discharges as specified in the MRP (Attachment E).
- ii. The Discharger shall develop and submit to the Santa Ana Water Board an Initial Investigation Toxicity Reduction Evaluation (IITRE) work plan within 90 days of the effective date of this permit. This work plan shall describe the steps the Discharger intends to follow if required. The work plan shall include at a minimum:
 - (a) A description of the investigation and evaluation techniques that will be used to identify potential causes/sources of the exceedance, effluent variability, and/or efficiency of the treatment system in removing toxic substances. This shall include a description of an accelerated chronic toxicity testing program.
 - (b) A description of the methods to be used for investigating and maximizing in-house treatment efficiency and good housekeeping practices.
 - (c) A description of the evaluation process to be used to determine if implementation of a more detailed Toxicity Reduction Evaluation and Toxicity Identification Evaluation (TRE/TIE) is necessary.

- (d) The Discharger shall implement the IITRE work plan whenever the chronic toxicity effluent limitation is exceeded.
- (e) The Discharger shall develop a detailed TRE/TIE work plan that shall describe the steps the Discharger intends to follow if the implemented IITRE fails to identify the cause of, or rectify, the toxicity.
- (f) The Discharger shall use as guidance, at a minimum, EPA manuals EPA/600/2-88/070 (industrial), EPA/600/4-89-001A (municipal), EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III) to identify the cause(s) of toxicity. If during the life of this Order, the aforementioned EPA manuals are revised or updated, the revised/updated manuals may also be used as guidance. The detailed TRE/TIE work plan shall include:
 - (1) Further actions to investigate and identify the cause of toxicity;
 - (2) Actions the Discharger will take to mitigate the impact of the discharge and to prevent the recurrence of toxicity; and
 - (3) A schedule for these actions.
- (g) The Discharger shall implement the TRE/TIE work plan if the IITRE fails to identify the cause of, or rectify, the toxicity, or if in the opinion of the Executive Officer, the IITRE does not adequately address an identified toxicity problem.
- (h) The Discharger shall assure that adequate resources are available to implement the required TRE/TIE.

b. Biological Surveys

Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The Discharger is required to conduct biological surveys (Before-After Control-Impact Study) that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The Santa Ana Water Board will use the data and results from the surveys and any other applicable data for evaluating the requirements specified in this Order. Please see Section VIII.D. of Attachment E for details.

c. Marine Life Mitigation Plan Schedule

The Water Code section 13142.5(b) determination is conditioned on the Discharger's satisfaction of the requirements set forth in the Marine Life Mitigation Plan Schedule (MLMP Schedule) in Attachment K. Pursuant to the MLMP Schedule, the Discharger shall submit a final MLMP that consists of a Coordination and Communication Plan, a Final Restoration Plan for the Fieldstone Property, a Final Restoration Plan for the Oil Pads and Road project, a Final Restoration Plan for the Intertidal Shelf Cordgrass Marsh project, a Final Creation

Plan for the Palos Verdes Artificial Reef, a Final Adaptive Management Plan for the Bolsa Chica mitigation projects, and a Final Adaptive Management Plan for the Palos Verdes Artificial Reef mitigation project in accordance with the established schedule. The plans must undergo any environmental review required under CEQA prior to the Board's final approval. The Discharger shall implement the final MLMP, as revised by the supplemental plans, upon approval by the Santa Ana Water Board in consultation with the State Water Board and other agencies that have authority to condition the approval of the project and require mitigation.

Based on calculations of the mitigation acreage available for the mitigation project components, the Santa Ana Water Board expects that the mitigation projects will provide sufficient mitigation acreage to meet the acreage requirements under chapter III.M.2.e.(3)(b)vi of the Ocean Plan, as adjusted by the mitigation ratios in chapter III.M.2.e.(3)(b)vi. This finding is conditioned on, and the awarding of all mitigation acreage is contingent upon, the Discharger's successful completion of each of the mitigation components specified in Attachment K and any environmental review required under CEQA. (See Attachment G, Finding 5.)

d. Mitigation Monitoring

After the updated MLMP is approved in accordance with the Marine Life Mitigation Plan Schedule (Section IV.C.2.c), the Discharger shall implement the approved MLMP and comply with the performance standards and monitoring and reporting requirements as specified in Attachment E and the approved MLMP in Section VI.C.2.c and Attachment K of this Order. The Discharger shall provide for the long-term operation and maintenance of the mitigation projects in the approved MLMP, including financial assurances, for the operational life of the Facility. If the approved mitigation does not meet the established performance standards for the operational lifetime of the Facility, the Discharger will be required to propose and implement additional mitigation to comply with Water Code section 13142.5(b) and the Ocean Plan.

5. Best Management Practices and Pollution Prevention

The Discharger shall implement best management practices (BMP) to control the discharge of pollutants in stormwater discharges associated with industrial activities.

- a. Pollutant Minimization Program (PMP).** Reporting protocols in the MRP (Attachment E) section X.B.4 describe sample results that are to be reported as detected but not quantified (DNQ) or not detected (ND). Definitions for a reported minimum level (ML) and method detection limit (MDL) are provided in Attachment A. These reporting protocols and definitions are used in determining the need to conduct a PMP as follows:

The Discharger shall develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic

organism tissue sampling) that a pollutant is present in the effluent above an effluent limitation and either:

- i. The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported ML, using definitions described in Attachment A and reporting protocols described in MRP section X.B.4;
- ii. The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section X.B.4.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants, where there is evidence that beneficial uses are being impacted. The Santa Ana Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a pollution prevention plan, if required pursuant to Water Code section 13263.3, subdivision (d), shall be considered to fulfill the PMP requirements.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Santa Ana Water Board:

- i. An annual review and semi-annual monitoring of potential sources of the reportable pollutant(s), which may include fish tissue monitoring and other bio-reportable pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
- ii. Quarterly monitoring for the reportable pollutant(s) in the influent;
- iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant(s) in the effluent at or below the effluent limitation;
- iv. Implementation of appropriate cost-effective control measures for the reportable pollutant(s), consistent with the control strategy; and
- v. An annual status report that shall be sent to the Santa Ana Water Board including:
 - (a) All PMP monitoring results for the previous year;
 - (b) A list of potential sources of the reportable pollutant(s);
 - (c) A summary of all actions undertaken pursuant to the control strategy; and
 - (d) A description of actions to be taken in the following year.

6. Climate Change Action Plan

Changing climate conditions may fundamentally alter the way desalination plants are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO₂) from human activity. The increased CO₂ emissions trigger changes to climatic patterns, which increase the intensity of sea level rise and coastal storm surges (Changes in Sea Level), lead to more erratic rainfall and local weather patterns (Changes in Weather Patterns), trigger a gradual warming of freshwater and ocean temperatures (Changes in Water Temperature) and trigger changes to ocean water chemistry (Changes in Water pH).

The Discharger shall prepare and submit a Climate Change Action Plan (CCAP) within 18 months of the effective date of this Order. The CCAP shall identify the following:

- a. Projected regional impacts on the Facility and operations due to climate change if current trends continue.
- b. Steps being taken or planned to address:
 - i. Greenhouse gas emissions, directly and indirectly, attributable to the Facility operations and effluent discharge process;
 - ii. Flooding and sea level rise risks that may affect the operations including discharges at the Facility;
 - iii. Volatile rain period impacts (both dry and wet weather);
 - iv. Impacts on process design parameters due to changes caused by climate change;
 - v. Impacts on the Facility's operations and effluent water quality; and
 - vi. Impacts to the mitigation site(s) approved by the Santa Ana Water Board.
- c. Potential need to adjust the conditions of this Order.
- d. Financing needed to pay for planned actions;
- e. Conformity with plans and requirements by other agencies, including but not limited to the California Air Resources Board, the Air Pollution Control District, and the California Coastal Commission.
- f. Schedules to update the CCAP as more information on climate change and its effects become available.
- g. Any other factors as appropriate.

The Santa Ana Water Board will consult with other state agencies with regulatory authority over the Facility in its review of the CCAP. The Discharger shall implement the CCAP upon approval by the Santa Ana Water Board.

7. Construction, Operation, and Maintenance Specifications

The Discharger shall develop an Operation and Maintenance Manual (O&M Manual). If an O&M Manual has been developed, the Discharger shall update it as necessary to conform to latest plant changes and requirements. The O&M Manual shall be readily available to operating personnel onsite. The O&M Manual shall include the following:

- a. Detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation, and equipment.
- b. Description of laboratory and quality assurance procedures.
- c. Process and equipment inspection and maintenance schedules,
- d. Description of safeguards to assure that, should there be reduction, loss, or failure of electric power, the Discharger will be able to comply with the terms and conditions of this Order.
- e. Description of preventive (fail-safe) and contingency (cleanup) plans for controlling accidental discharges and for minimizing the effect of such events. These plans shall identify the possible sources (such as loading and storage areas, power outage, waste treatment unit failure, process equipment failure, tank and piping failure) of accidental discharges, untreated or partially treated waste bypass, and polluted drainage.
- f. Asset Management. The Discharger shall develop an asset management program (AMP) to cover the Facility and intake and outfall structures. The Discharger shall:
 - i. Prior to operations, procure, populate, and utilize asset management and/or work order management software. This software shall: Inventory all critical assets valued over \$40,000 into a single database (assets may include, but are not limited to pipelines, manholes, outfalls, pump stations, force mains, catch basins, and wastewater treatment facility assets); automate work order production and tracking; and prioritize system maintenance and rehabilitation projects. Each entry shall include: Name and identification number; location (GPS coordinate or equivalent identifier); current performance/condition; purchase and installation date; purchase price; replacement cost; quantitative consequence of failure; and quantitative likelihood of failure.
 - ii. Prior to operations, create and submit to the Santa Ana Water Board an Asset Management Plan (AMP). The AMP shall be updated and re-evaluated every five years. The AMP shall include the following components: A Rehabilitation and Replacement Plan identifying and prioritizing upcoming asset rehabilitation and replacement projects costing greater than \$40,000 and outline a proposed schedule for completion of each project; a Maintenance

Plan that identifies categories of, maintenance activities and frequency performed.

8. Notice of Shutdown for Preventative or Corrective Maintenance

The Discharger shall notify the Santa Water Board of any preventative maintenance that will result in the complete or partial shutdown of the Facility. The Discharger shall provide written notice to the Santa Ana Water Board a minimum of 30 days prior to the complete or partial shutdown of the Facility for preventative maintenance. The written notice shall explain:

- a. The dates the preventative maintenance is expected to occur;
- b. The purpose of the preventative maintenance;
- c. What preventative maintenance activities will occur;
- d. How the preventative maintenance may impact influent and effluent flows; and
- e. How the preventative maintenance may impact water quality and compliance with permit conditions.

The Discharger shall also notify the Santa Water Board of any corrective maintenance that will or did result in the complete or partial shutdown of the Facility. In the event of a complete or partial shutdown of the Facility for corrective maintenance that will or did have a significant impact on influent or effluent flow, the Discharger shall send email notice to and verbally notify the Santa Ana Water Board within 24 hours of becoming aware that corrective maintenance will or did result in a partial or complete shutdown that is or was necessary. Within 5 days of providing verbal notification, the Discharger shall provide written notification and shall explain:

- a. The dates the corrective maintenance is expected to/did occur;
- b. Why corrective maintenance is/was necessary;
- c. What corrective maintenance activities will be or have been performed;
- d. How the corrective maintenance has or may impact influent and effluent flows; and
- e. How the corrective maintenance has or may impact water quality and compliance with permit conditions.

During the next monthly reporting period following the preventative or corrective maintenance, the Discharger shall provide notification to the Santa Ana Water Board that the maintenance activities have been completed or provide any necessary updates to the previously submitted information. As used in this section, a partial Facility shutdown means reducing the authorized operating flows to or below 50%.

9. Other Special Provisions – Not Applicable

10. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV. of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined in the MRP (Attachment E) and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Santa Ana Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported reporting level (RL).

B. Multiple Sample Data.

When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of DNQ or ND, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Monthly Effluent Limitation (AMEL).

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that calendar month. The Discharger will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

D. Compliance with Average Weekly Effluent Limitation (AWEL)

If the average of daily discharge monitoring results over a calendar week (Sunday through Saturday) exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger is out of compliance for each day of that week for that parameter, resulting in seven days of noncompliance. The average of daily discharge monitoring results over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger is out of compliance for

that calendar week. For any one calendar week during which no sample is taken, no compliance determination can be made for that calendar week.

E. Maximum Daily Effluent Limitation (MDEL).

If a daily discharge or when applicable, the median determined by subsection B above for multiple sample data of a daily discharge exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

F. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

H. Six-month Median Effluent Limitation.

If the median of daily discharges over any 180-day period exceeds the six-month median effluent concentration limitation for a given parameter, the Discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the Discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median limitation.

Similarly, compliance with the six-month median mass emissions limit shall be determined by comparing the calculated mass limit with calculated mass discharges. If mass discharges exceed the allowed mass discharges, the Discharger is not in compliance. The calculated mass discharges shall be determined by using the same equation in calculating the mass emission limit and using the allowable six-month median effluent concentration and the observed flow rate in millions of gallons per day.

I. Mass and Concentration Limitations.

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be "ND" or "DNQ", the corresponding Mass Emission Rate (MER) determined from that sample concentration shall also be reported as "ND" or "DNQ".

J. Ocean Plan Provisions for Table 3 Constituents.

1. Sampling Reporting Protocols

- a. The Discharger shall report with each sample result the reported ML and the laboratory's current MDL.
- b. The Discharger shall also report results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:
 - i. Sample results greater than or equal to the reported ML must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).
 - ii. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shorted to Est. Conc.).
 - iii. Sample results less than the laboratory's MDL must be reported as "Not Detected", or ND.

2. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations.

The Discharger shall be deemed out of compliance with an effluent limitation or discharge specification if, based on reliable data, the concentration of the constituent in the monitoring sample is greater than the effluent limitation or discharge specification and greater than or equal to the ML.

b. Compliance with Effluent Limitations Expressed as a Sum of Constituents.

The Discharger shall be deemed out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g., chlorinated phenolics) if, based on reliable data, the sum of the individual pollutant concentrations is greater than

the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

- c. **MERate.** The MER, in pounds per day, shall be obtained from the following calculation for any calendar day:

$$\text{MERate (lbs/day)} = 8.34 \times Q \times C$$

In which Q and C are the flow rate in million gallons per day and the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor (lbs/gallon of water). If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited.

- d. **Salinity.** Compliance with the salinity receiving water limitation established in section V.A.1 of the Order shall be evaluated by comparing reference background salinity from the reference location (per section V.A.1. of the Order) to receiving water salinity at the edge of the brine mixing zone at monitoring locations RSW-007, RSW-008, RSW-009, and RSW-010.

Each monitoring station located along the 100-meter limit of the brine mixing zone (RSW-007, RSW-008, RSW-009, and RSW-010) shall be evaluated separately at each depth profile. Receiving water salinity greater than 2.0 ppt outside of the 100-meter limit of the brine mixing zone of the corresponding reference background salinity shall constitute an exceedance of the salinity receiving water limitation.

**APRIL 28, 2021 DRAFT TO IMPLEMENT
ALTERNATIVE # 2 TO DISCHARGE AND INTAKE PROHIBITIONS**

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ATTACHMENT F – FACT SHEET

As described in section II.B of the Order, the Santa Ana Water Board incorporates this Fact Sheet as findings of the Santa Ana Water Board supporting the issuance of the Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of the Order.

The Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of the Order that are specifically identified as “not applicable” have been determined not to apply to the Discharger. Sections or subsections of the Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	8 303431001
Discharger	Poseidon Resources (Surfside) LLC
Name of Facility	Huntington Beach Desalination Facility
Facility Address	21730 Newland Street
	Huntington Beach, CA 92646
	Orange County
Facility Contact, Title and Phone	Scott Maloni, Vice President, (760) 655-3996
Authorized Person to Sign and Submit Reports	Same as above
Mailing Address	5780 Fleet Street, Suite 140, Carlsbad, CA 92008
Billing Address	Same as mailing address
Type of Facility	Desalination
Major or Minor Facility	Major
Threat to Water Quality	2 ¹
Complexity	B ²
Pretreatment Program	N/A
Recycling Requirements	N/A
Facility Permitted Flow^{3, 4} at Monitoring Location M-001	56.69 million gallons per day (MGD) 12-Month Average Flow 62.5 MGD Maximum Daily Flow
Facility Design Flow^{3, 4}	56.69 MGD 12-Month Average Flow 62.5 MGD Maximum Daily Flow
Watershed	N/A
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean waters

1. Threat to Water Quality Category 2 is defined as “[t]hose discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.” (Cal. Code Regs., tit. 23, § 2200, subd. (a)(1).)

2. Complexity Category B is defined as “[a]ny discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management unit.” (Cal. Code Regs., tit. 23, § 2200, subd. (a)(1).)
3. Listed total discharge flow is for process flows during non-storm conditions. On-site storm runoff of 1.67 MGD may occur during storm periods in addition to the facility permitted flow and facility design flow.
4. Flows up to approximately 126.7 MGD may occur during start-up operations or temporary maintenance operations when all or a portion of filtered pretreated seawater is directed back into the discharge pipeline. Additionally, dechlorinated product water would be temporarily discharged back into the discharge pipeline during start-up periods or other times when it is not feasible to deliver product water to the regional potable water system. All limits and requirements, including monitoring, specified in the Order remain applicable during these temporary discharges.

- A.** Poseidon Resources (Surfside) LLC (Discharger) is the owner and operator of Huntington Beach Desalination Facility (Facility).

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Discharger proposes to construct and operate the Facility on a 12-acre parcel on the AES Huntington Beach Generating Station (HBGS). Once constructed, the Facility will discharge wastewater to the Pacific Ocean, a water of the United States. The Discharger was initially regulated by Order No. R8-2006-0034, National Pollutant Discharge Elimination System (NPDES) Permit No. CA8000403, adopted on August 25, 2006 and expired on August 1, 2011. Order No. R8-2006-0034 was superseded and rescinded by Order No. R8-2012-0007 NPDES Permit No. CA8000403 (2012 Order), adopted on February 10, 2012 and expired on February 1, 2017. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.
- C.** The Discharger submitted a timely application for permit renewal. The Discharger filed a report of waste discharge (ROWD) and an application for the renewal of waste discharge requirements (WDRs) and NPDES permit for the Facility on June 30, 2016. The Discharger also submitted a request for a Water Code section 13142.5, subdivision (b) (section 13142.5(b)) determination for the Facility on March 15, 2016. The Discharger submitted supplemental information in response to Santa Ana Water Board letters dated July 29, 2016, October 31, 2016, and May 23, 2017. The Santa Ana Water Board deemed the Discharger’s application complete on August 28, 2017. Based on the findings of an independent review of the diffuser design, dated April 18, 2018, Santa Ana Water Board staff informed the Discharger that the proposed diffuser design would not be recommended as the best available design or technology feasible to minimize intake and mortality of all forms of marine life. The Discharger submitted a revised diffuser design to meet the specifications in the independent review. The Santa Ana Water Board treated the revised diffuser design as a new application and deemed it complete on October 1, 2018.
- D.** Pursuant to federal regulations (40 CFR section 122.46), the duration of NPDES permits may not exceed a fixed term of five years. Accordingly, Table 3 of the Order limits the duration of the discharge authorization to five years. However, pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically

continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

- E. Water Code section 13142.5(b) requires that for each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. Chapter III.M.2 of the Ocean Plan provides the framework that regional water boards must use to evaluate whether a desalination facility complies with Water Code section 13142.5(b).
- F. Co-located and Temporary Stand-Alone Operations (2012 Determination) – The 2012 Order included a Water Code section 13142.5(b) determination for the Facility for co-located operating conditions with HBGS and for temporary stand-alone operating conditions when HBGS's operations did not provide sufficient flows. The 2012 Order did not cover permanent stand-alone operations of the Facility and specifically stated the Discharger was required to obtain a new Water Code section 13142.5(b) determination for permanent stand-alone operations if HBGS ceased operation of its once-through cooling system. Additionally, the Facility is a new facility as defined under chapter III.M.1.b of the Ocean Plan and must obtain a Water Code section 13142.5(b) determination in compliance with chapter III.M.
- G. Stand-Alone Operations (2019 Determination) – The Discharger submitted a request for Water Code section 13142.5(b) determination to cover co-located operations with HBGS, temporary stand-alone operations, and permanent stand-alone operations. However, pursuant to Order R8-2020-0040, the HBGS is scheduled to cease operation of its once-through cooling system by December 31, 2023 and the Facility will not be completed before that time to operate in a co-located mode. As such, the Water Code section 13142.5(b) determination for the Facility only covers permanent stand-alone operations.

In accordance with the Ocean Plan, the Santa Ana Water Board first analyzed separately as independent considerations, and then collectively, a range of feasible alternatives for the best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life. Having done this analysis, the Santa Ana Water Board has conditionally determined that the Facility will use the best available combination of site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. This conditional determination is limited to the stand-alone operation of the Facility. Attachment G to this Order summarizes the Santa Ana Water Board's findings in support of its Water Code section 13142.5(b) conditional determination. Attachment K includes the Marine Life Mitigation Plan (MLMP) Schedule that sets forth the additional information the Discharger must submit for the proposed mitigation project.

- H. Future Modified Operations - Any future expansions to the Facility as described in the Ocean Plan section III.M.1.b(2) will require a new Water Code section 13142.5(b) determination.

II. FACILITY DESCRIPTION

The Discharger proposes to construct and operate the Facility's water treatment process on approximately 12 acres located adjacent to the AES Huntington Beach Generating Station (HBGS) and to modify and operate the HBGS intake and discharge systems located directly west of the power plant in the Pacific Ocean. In September 2005, the Discharger entered into a 55-year option

agreement with AES,¹ the owner and operator of the HBGS, for the Facility site. The Facility will produce an average annual volume of 50 MGD of potable water using the process described below and as shown in Attachment C – Flow Schematic.

The Facility meets the definition of a “new facility” in chapter III.M.1.b.(3) of the Ocean Plan and must comply with the Ocean Plan requirements for new facilities. Prior to the start of any commercial operations, the Discharger must retrofit the existing offshore intake and discharge structures to minimize intake and mortality of all forms of marine life. At the intake tower, the Discharger will install a screening system consisting of four 1.0-mm slot wedgewire screens with a through-screen velocity of 0.5 ft/sec or less. The wedgewire screens must be rotating brush-cleaned, stainless steel wedgewire screens; the Discharger may use a boat-based air burst system or deploy divers to remove debris that accumulates on the screens. At the discharge tower, the Discharger will install a multiport diffuser consisting of 14 ports equipped with Tideflex diamond-shaped nozzles (or similar) with an open area of 1.28 ft.²

The Facility will permanently operate in a stand-alone mode. The following summarizes the proposed facilities and operations:

- **Permanent Stand-Alone Operations:** It is anticipated that the AES HBGS will discontinue the use of once-through cooling water by December 31, 2023 (see AES NPDES Permit, Order R8-2020-0040). The Facility will be completed after December 31, 2023 and operate as a permanent, stand-alone facility and the Discharger will be responsible for the intake of seawater and discharge of wastewater from Discharge Point 001.

During initial start-up of permanent stand-alone operations and temporary maintenance operations, it may be necessary to temporarily return all or a portion of the filtered pretreated seawater (up to approximately 126.7 MGD) back into the AES HBGS discharge pipeline instead of routing the filtered seawater flow to the reverse osmosis (RO) units. Additionally, during such start-up periods or periods when it is not feasible to deliver product water to the regional potable water system, it may be necessary to temporarily discharge dechlorinated product water from the RO process back into the AES HBGS discharge pipeline. During these temporary periods, the maximum allowable flows returned to the ocean would not exceed 126.7 MGD and the volume and salinity of the additional discharges would be identical to the volume and salinity of the intake water. As a result, no water quality changes would occur as a result of such temporary process water diversions.

Table F-2 summarizes the Facility’s intake and discharge flows under co-located, temporary stand-alone, and permanent stand-alone operations.

Table F-2. Summary of Desalination Facility Intake and Discharge Flows

Parameter		Permanent Stand-Alone Operating Conditions		Start Up/ Maintenance ²
		Annual Average Flow (MGD)	Daily Peak Flow (MGD)	(MGD)
Potable water production capacity		50	54	54
Project Intake Flows	Intake through new 1 mm screens	106.7	116.5	126.7 ³

¹ Appendix I, Executed SLC Lease Amendment

Parameter		Permanent Stand-Alone Operating Conditions		Start Up/ Maintenance ²
		Annual Average Flow (MGD)	Daily Peak Flow (MGD)	(MGD)
Wastewater discharge components	Granular Media Filtration or Membrane Filtration Backwash	6.4	8.2	18.7 ⁴
	RO Concentrate	50	54	54
	Reverse Osmosis Rinse Water	0.29	0.3	--
	Total Wastewater Discharge Flow	56.69 ¹	62.5 ¹	126.7

1. Listed total discharge flow is for process flows during non-storm conditions. On-site storm water runoff of 1.67 MGD may occur during storm periods in addition to the above-listed process discharge flows.
2. Project flows may occur during start-up operations or temporary maintenance operations when all or a portion of the filtered pretreated seawater is directed back into the AES HBGS pipeline. Additionally, dechlorinated product water would be temporarily discharged back into the HBGS discharge pipe during start-up periods or other times when it is not feasible to deliver product water to the regional potable water system. Startup and maintenance periods are not expected to exceed a period of 10 days.
3. Startup/maintenance intake flow of 126.7 MGD through new 1-mm screens would occur under permanent stand-alone conditions.
4. The backwash flow includes flow to meet start up requirements associated with conditioning filters and flushing pipelines.

A. Description of Desalination Process

The RO process will use high-rejection seawater membranes. The system will be made up of 14 process trains, each train with a design capacity of approximately 4.2 MGD. The plant will be designed to produce an average of 50 MGD of potable water using only 13 of the 14 RO trains. The fourteenth RO train will be used when the Facility is producing more than 50 MGD and for standby purposes when any of the other trains requires maintenance. This arrangement provides approximately 4 percent standby capacity, which is needed to ensure continuous potable water delivery while accommodating normal membrane wear and maintenance requirements.

B. Description of Wastewater and Solids Treatment and Controls

The Facility will generate waste streams from the following treatments and controls that will be discharged to the Pacific Ocean through the Facility discharge diffuser:

1. **Chlorinated/Dechlorinated Seawater:** To prevent microbiological growth in the onshore intake system and filter media, the intake water will be chlorinated intermittently, as necessary, however the final effluent will be dechlorinated.

- 2. Concentrated Seawater Resulting from the RO Treatment process (RO Concentrate):** Approximately one gallon of concentrated seawater will be created for every gallon of potable drinking water produced; therefore, for 50 MGD of desalination product water, approximately 50 MGD of concentrated seawater will be generated. The salinity of the concentrate will be approximately 68,000 mg/L, twice the concentration of the intake ocean water (33,500 mg/L or 33.5 ppt).

- 3. Granular Media or Membrane Filtration Backwash Water:** The pretreatment filters will be cleaned (backwashed) to remove the intake seawater solids that accumulate in the filtration units. The Facility will use filtered seawater for backwash. The average and maximum volumes of filter backwash water are anticipated to be 6.4 MGD and 8.2 MGD, respectively. During Facility start-up and/or maintenance operations, the filtration backwash may be as much as 18.7 MGD. The spent filter backwash water will have salinities approximately equal to the intake ocean water (34,000 mg/L).

The type of treatment for spent filter backwash will depend upon the choice of the filtration technology to be used by the Facility. Under the media filtration option, ferric chloride or ferric sulfate coagulant and polymer will be added to the influent to enhance removal of particulate matter. The coagulant would be removed from the filter during the filter backwash cycle, collected in a sedimentation basin (solids handling facility), removed as sludge, and disposed of at a landfill. The liquid phase from the sedimentation basin will be directed to the AES HBGS discharge pipeline. The membrane filtration option does not require the use of coagulant. Under this option, the backwash water would be discharged directly to the discharge pipeline. However, the membrane filtration system would require periodic chemical cleaning. The spent cleaning solution would be collected in a separate tank, neutralized, and discharged to the sanitary sewer.

- 4. Used Membrane Cleaning Solution and Rinse Water:** The accumulation of silts or scale on the RO membranes causes fouling that reduces membrane performance. The RO system membranes will be cleaned periodically to remove foulants and to extend the life of the RO membrane. Typical cleaning frequency of the RO membranes is twice per year. Typically, one RO train is taken offline at a time for cleaning and two RO trains are cleaned per month. In extreme conditions (for example, during very wet years or prolonged periods of strong winds when the silt content in the raw seawater may increase significantly), as many as four membrane trains may need to be cleaned in the same month.

It typically takes one day to complete the cleaning of one membrane train. Since one membrane train is typically cleaned at a time and each of the 13 RO membrane trains have to be cleaned two times per year, the cleaning of all membrane trains will typically take a total of 26 days per year (13 trains x 2 cleanings/train x 1 day per cleaning). Taking into consideration that there are 52 weeks per year, an average of one membrane train will be cleaned every two weeks (i.e., typically, two membrane cleanings will occur per month). In rare situations, as many as four membrane cleanings may occur per month.

To clean the membranes, a chemical cleaning solution is circulated through the membrane train for a preset time. Chemicals typically used for cleaning the RO membranes include:

- Citric acid - (2% solution)

- Sodium hydroxide - (0.1% solution)
- Sodium tripolyphosphate - (2% solution)
- Sulfuric acid - (0.1% solution)
- Sodium dodecylbenzene sulfonate- (0.25%)
- Sodium metabisulfate (1% w/w)

After the cleaning solution circulation is completed, the spent cleaning solution waste is removed from the train to a storage tank where it may be reused or diverted for appropriate disposal. Once the spent cleaning solution is removed from the RO train, the membranes are rinsed with RO water to remove all the residual cleaning solution. The spent rinse water for membrane cleaning is stored separately in a rinse water tank prior to disposal.

The various membrane cleaning waste discharge streams are described below:

- Cleaning solution waste is the actual spent membrane-cleaning chemical. Spent cleaning wastes will be reused or discharged to the local sewer system for further treatment at the Orange County Sanitation District's regional wastewater treatment facility.
- First rinse water is the first batch of water used to rinse the membranes after the recirculation of cleaning solution is discontinued. This rinse water contains diluted residual cleaning solution and will also be discharged to the local sewer system.
- Subsequent rinse water is the water used to rinse the membranes after the first rinse. This rinse wastewater contains only trace amounts of cleaning solution and will be discharged with the concentrated seawater waste to the ocean.

The spent cleaning solution and first rinse water will be conveyed to a tank for retention and treatment prior to discharge to the local sewer system pursuant to an industrial pretreatment permit issued by the Orange County Sanitation District. The tank will have sufficient capacity to store cleaning solution from two simultaneous RO membrane train cleanings.

The subsequent rinse water will be conveyed to a 200,000-gallon rinse water tank for retention and treatment prior to discharge. Since the volume of the subsequent rinse water generated during cleaning of one membrane train is 76,000 gallons, the rinse water tank will have sufficient capacity to store cleaning solution from two simultaneous RO membrane train cleanings. The subsequent rinse water will be pumped out of the rinse water tank to the Facility effluent outfall to the HBGS discharge pipe at a rate of 200 gpm (0.29 MGD). Because the volume of the spent subsequent rinse water per one cleaning is 76,000 gallons, it will take approximately 6.5 to 7 hours to discharge the treated spent subsequent rinse water to the Facility outfall.

Under normal operating conditions, the total volume of subsequent rinse water used for membrane cleaning will be 152,000 gallons per month. These discharges will be discrete events and will continue for a total of 13 to 14 hours per month at a rate of 200 gallons per minute (gpm) (0.29 MGD). In rare situations when the number of membrane cleanings per month may need to be increased, the total volume of the discharged treated cleaning solution to the Facility outfall will be limited to 304,000 gallons per month. The typical

volumes of waste streams generated during the cleaning of one RO membrane train (independent of type of cleaning solution) is summarized in Table F-3.

Table F-3. Typical RO Membrane Cleaning Solution Discharge Volumes

Type of Discharge	Gallons Per Membrane Train	Percentage of Total Volume of Discharge per-RO Train Cleaning
Cleaning Solution Waste	4,000	4.4
First Rinse Wastewater-Residual Cleaning Solution	11,000	12.1
Total Discharge to Sewer	15,000	---
Subsequent Rinse Wastewater	76,000	82.5
Total Discharge to Outfall	76,000	---
Total Discharge	91,000	100

Attachment C-1 presents a schematic of water flow at the Facility. Attachment C-2 presents a schematic of the water intake and discharge points.

5. **pH Adjustment and Dechlorination:** To reduce the potential for scale formation in the RO process, sulfuric acid may be added to the water after media or membrane filtration pretreatment. The required dosage amount will be determined based on the bicarbonate concentration of the seawater and the Stiff-Davis Index (SDI) needed in the RO concentrate. The acid also provides carbon dioxide in the RO permeate (i.e., product water), which is needed to react with the lime for product water stabilization in the permeate, post-treatment step. Dechlorination using sodium bisulfite will also be done before cartridge filtration to prevent damage to the RO membranes and to protect the RO systems.
6. **Post Treatment Process:** Product water from the RO process requires chemical conditioning prior to delivery to the distribution system to increase hardness and reduce its corrosion potential. Limestone and carbon dioxide will be used for post-treatment stabilization of the water. Approximately 2-3 times a week, 50,000 gallons of calcite bed backwash is included in the pretreatment backwash flow rates shown in Table F-2. Calcite is NSF-approved and used to stabilize the quality of the water in the distribution system. In addition, the final product water must be disinfected prior to delivery to the distribution system. Chlorine, in the form of sodium hypochlorite and ammonia, will be added as a disinfectant to meet California Department of Public Health (CDPH) water quality standards for potable water disinfection and to control biological growth in the transmission pipeline (note, as of July 2014 the Division of Drinking Water of the State Water Resources Control Board has assumed oversight of the drinking water program). During start-up periods or other times when it is not feasible to deliver product water to the regional potable water system the product water would be dechlorinated and temporarily discharged back into the AES HBGS discharge pipe.

C. Discharge Points and Receiving Waters

The Facility will be permitted to discharge exclusively at Discharge Point 001 located at latitude 33.64389° and longitude -117.97890°. The discharge will flow to the Pacific Ocean.

This Order authorizes a minimum monthly initial dilution of 15:1 for salinity and the discharge of other pollutants (toxic, conventional, and non-conventional) at Discharge Point 001. This initial dilution ratio is based on initial dilution modeling conducted for the discharge using a computational fluid dynamic (CFD) modeling approach, conservative effluent and receiving water characteristic input values, and the revised diffuser design submitted by the Discharger on January 18, 2019 (i.e., 14-port diffuser equipped with Tideflex nozzles).

In July 2018, the Discharger submitted a technical memorandum summarizing a dilution analysis of a 14-port diffuser, designed to minimize entrainment flow and designed following the procedures described in papers developed in 2018 by Philip Roberts titled, *Brine Diffusers and Shear Mortality* and *Brine Diffusers and Shear Mortality: Application to Huntington Beach*. The diffuser design included 2 header pipes with a total of 14 ports (7 ports per header) capped with tide check valves at angles that are oriented 60 degrees upward and 45 degrees to the pipe in plan view, and spaced 20.4 feet. The reported port depth was 17.8 feet below mean lower low water. Consistent with Ocean Plan requirements, no current or waves were considered in evaluating dilution.

In the July 2018 modeling, the Discharger used the Updated Merge 3D (UM3) module of Visual Plumes developed by the United States Environmental Protection Agency (U.S. EPA). UM3 is a quasi-three-dimensional model used for simulating single and multi-port submerged discharges. The UM3 model indicated that a dilution of 14.5:1 was achieved under minimum month conditions. However, in January 2019, the Discharger submitted an additional technical memorandum as Attachment NNNNN to the ROWD in which the diffuser design was realigned. The modeling was performed using a CFD model (i.e., ANSYS-Fluent). The 2019 modeling effort indicates that a dilution of 15:1 is achieved under minimum monthly initial dilution conditions. The CFD model and UM3 model indicate similar terminal rise heights of the discharge plume under minimum initial dilution conditions. The CFD model indicates a more conservative initial dilution and zone of initial dilution throughout the plume phase of the discharge (i.e., lower dilution and larger zone of initial dilution). The more conservative CFD modeling results have been used to establish the applicable dilution for evaluating the impact of salinity and other pollutants with water quality objectives contained in the Ocean Plan, and for establishing effluent limitations necessary to protect the beneficial uses of the Pacific Ocean.

Table 3 of the Ocean Plan establishes receiving water standards that are to be achieved upon completion of initial dilution. Section III.M.3 of the Ocean Plan also establishes that salinity levels shall not exceed 2 ppt salinity beyond a brine mixing zone (BMZ) that is to extend no further than 100 meters (328 feet) beyond the discharge point. The size of the zone within which initial dilution is completed (zone of initial dilution or ZID) will vary depending on ambient ocean density conditions. The CFD and UM3 models indicate that initial dilution will always be completed within 100 meters (328 feet) of the discharge point throughout the range of anticipated ocean density conditions. Monitoring stations established 100 meters (328 feet) or more from the discharge point are thus representative of receiving waters beyond the ZID and beyond the BMZ.

- D. Summary of Existing Requirements and Self-Monitoring Report Data - Not Applicable**
- E. Compliance Summary - Not Applicable**
- F. Planned Changes - Not Applicable**

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

The Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (EPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDRs in the Order. The Order also includes the Santa Ana Water Board's Water Code section 13142.5(b) determination.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of chapter 3 of CEQA, (commencing with section 21100) of division 13 of the Public Resources Code. However, compliance with CEQA is required for those provisions in this Order that are based on state law only. This Order's determination that the Facility complies with Water Code section 13142.5(b) is a determination based on consideration of state law only and is subject to CEQA compliance. The Santa Ana Water Board is a responsible agency for purposes of CEQA.

On September 7, 2010, the City of Huntington Beach (City) amended Conditional Use Permit No. 02-04 and certified a Final Subsequent Environmental Impact Report (2010 FSEIR) for the Poseidon Seawater Desalination Project at Huntington Beach. As the lead agency, the City adopted a CEQA Statement of Findings of Facts with Statement of Overriding Considerations and a Mitigation Monitoring and Reporting Program. On September 20, 2010, the City approved Coastal Development Permit No. 10-014. On October 19, 2017, the California State Lands Commission, acting as a responsible agency, certified the Final Supplemental Environmental Impact Report (2017 FSEIR) for the Seawater Desalination Project at Huntington Beach: Outfall/Intake Modifications & General Lease – Industrial Use (PRC 1980.1) Amendment (State Clearinghouse No. 2001051092) and adopted a CEQA Statement of Findings of Facts with Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program.

In 2018, the Discharger's proposed diffuser design (the diffuser design that was analyzed in the 2017 FSEIR) was reviewed by Dr. Phil Roberts, an independent reviewer. In his review, Dr. Roberts ultimately concluded that the proposed diffuser design was not the best available design or technology to minimize intake and mortality of marine life. The Discharger modified the diffuser design to address the findings of Dr. Roberts's review and to comply with Water Code section 13142.5(b) and the Ocean Plan. The modifications to the diffuser design, as described in the Addendum, do not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects that would require the preparation of a subsequent or supplemental environmental impact report under CEQA Guidelines sections 15162 or 15163. As such, the Santa Ana Water Board prepared an addendum to the 2010 FSEIR and the 2017 FSEIR to address the minor changes to the

diffuser design. The 2010 FSEIR, the 2017 FSEIR, and the Addendum analyze the environmental impacts of and the mitigation measures for the Facility in detail and are incorporated herein by reference.

The Santa Ana Water Board independently reviewed and considered the environmental impacts related to the Santa Ana Water Board's review of the Facility's compliance with Water Code section 13142.5(b) as analyzed in the 2010 FSEIR, the 2017 FSEIR, the City's and the State Land Commission's Statements of Overriding Considerations, and the Addendum. The Santa Ana Water Board concurs with and incorporates the City's and the State Lands Commission's findings of no impact, less than significant impact, less than significant impact with mitigation, and significant and unavoidable impact related to the Water Code section 13142.5(b) determination in the 2010 FSEIR and the 2017 FSEIR. The Santa Ana Water Board specifically concurs with and incorporates the State Lands Commission's findings in the 2017 FSEIR that certain impacts to Ocean Water Quality and Marine Biological Resources (namely, impacts to special status species population and movement of marine mammal species as a result of underwater noise during construction related to the installation of wedgewire screens and the diffuser) and to Air Quality (namely, air emissions for construction related to the wedgewire screens and the diffuser and cumulative air emissions) are significant and unavoidable impacts. Finally, the Santa Ana Water Board concurs with and incorporates the City's and the State Land Commission's Statements of Findings and Statements of Overriding Considerations.

As a responsible agency, the Santa Ana Water Board is responsible for mitigating or avoiding the direct and indirect environmental effects of those parts of a project that it decides to approve. The Santa Ana Water Board has incorporated all feasible mitigation measures identified in the 2010 FSEIR and 2017 FSEIR within its scope of authority for the Water Code section 13142.5(b) determination. The Discharger is required to make changes or alterations to the Facility that avoid or substantially lessen the significant environmental effects that are within the Santa Ana Water Board's jurisdiction. The Order, inclusive of the Water Code section 13142.5(b) determination, requires the Discharger to modify the Facility's intake and discharge structures to minimize intake and mortality of all forms of marine life. Pursuant to this Order, and as discussed in the 2017 FSEIR, the Discharger must install wedgewire screens with a 1.0 mm or smaller slot size screen at the onset of the intake pipe which will reduce entrainment of marine life by one percent.

Additionally, to minimize impingement of marine life, the through-screen velocity at the Facility's surface water intake may not exceed 0.15 meters per second. With regard to the discharge infrastructure, the Order requires the Discharger to install a revised multiport diffuser that will result in less shearing-related mortality of marine life as compared to the diffuser design analyzed in the 2017 FSEIR. The Order also requires the Discharger to comply with the receiving water limitation for salinity (2.0 parts per thousand above natural background) in the Ocean Plan and establishes a smaller brine mixing zone, resulting in a smaller area of impact.

Finally, the Discharger is required to mitigate for the intake and mortality associated with the construction and operation of the Facility in accordance with an approved Final Marine Life Mitigation Plan (MLMP) that meets the requirements of Attachment K and the Ocean Plan. The implementation of mitigation measures will reduce effects on the environment that are within the Santa Ana Water Board's jurisdictional responsibility to less than significant. The Order requires the Discharger to comply with a monitoring and reporting program that will

ensure that the mitigation measures are implemented and that the requirements of this Order are met.

The Discharger's proposed mitigation includes conceptual plans for four restoration projects within the Bolsa Chica Ecological Reserve and a conceptual plan for the creation of an artificial reef along the Palos Verdes Peninsula. The conceptual Bolsa Chica projects are the restoration of the Fieldstone Property to subtidal habitat, restoration of an area of oil pads, roads, and berms to subtidal habitat, restoration of marsh habitat on the intertidal shelf in the Full Tidal Basin, and enhancement of water circulation within the Muted Tidal Basins. The Santa Ana Water Board has conditionally approved these conceptual mitigation projects as the best available mitigation feasible; however, final approval of the mitigation projects is subject to the Discharger's completion of the tasks set forth in the MLMP Schedule (Attachment K). The conceptual mitigation projects will also need to undergo any environmental review required under CEQA prior to the Santa Ana Water Board's final approval and may be subject to changes based on environmental review. There is not sufficient information regarding these conceptual mitigation projects to complete a meaningful analysis of the potential environmental impacts at this time. Therefore, it would be premature for the Santa Ana Water Board to commit at this time to approving these proposed mitigation projects. If the CEQA review for the mitigation projects indicate that there are significant environmental effects associated with one or more of the Discharger's proposed mitigation projects, the Santa Ana Water Board may require the Discharger to propose alternative mitigation projects. In that case, the Santa Ana Water Board's Water Code section 13142.5(b) determination for those proposed mitigation projects will no longer be valid, and the Discharger must submit a new request for a Water Code section 13142.5(b) determination, limited to the alternative mitigation projects, and the Santa Ana Water Board must make a new Water Code section 13142.5(b) determination for the alternative mitigation projects.

The Discharger's proposed mitigation also includes the dredging of the Bolsa Chica ocean inlet to preserve tidal flow and connectivity between the wetlands and the Pacific Ocean, and to support the proposed Bolsa Chica conceptual restoration projects. For this component of the mitigation project, the Discharger will assume responsibility for the maintenance dredging currently carried out by the State Lands Commission. The State Lands Commission has performed the maintenance dredging intermittently since 2006 and has all necessary permits to perform the dredging, including a Clean Water Act Section 401 Water Quality Certification issued by the Santa Ana Water Board on February 28, 2018. The Discharger will perform the maintenance dredging as authorized under the State Lands Commission's current permits and must work with the State Lands Commission to obtain coverage under the existing permits. The maintenance dredging has undergone environmental review under CEQA as part of the permitting process and is not subject to further CEQA review.

C. State and Federal Laws, Regulations, Policies, and Plans

Water Quality Control Plan. The Santa Ana Water Board adopted a Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) on January 24, 1995 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for the waters in the region. The Basin Plan specifies the beneficial uses for the nearshore and offshore zones of the Pacific Ocean that are within the jurisdiction of the Santa Ana Water Board.

Requirements in this Order implement the Basin Plan. Beneficial uses applicable to the Pacific Ocean are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 ¹	Pacific Ocean Nearshore ² Zone from the San Gabriel River to Poppy Street in Corona del Mar	Present or Potential Beneficial Use: Industrial service supply (IND); Navigation (NAV); Water contact recreation (REC-1); Non-contact water recreation (REC-2); Commercial and sport fishing (COMM); Wildlife habitat (WILD); Rare, threatened or endangered species (RARE); Spawning, reproduction, and development (SPWN); Marine habitat (MAR); Shellfish harvesting (SHELL). [Excepted from Municipal and Domestic supply] ³

¹ This discharge is to AES-HBGS discharge pipeline to the Pacific Ocean.

² The nearshore zone is defined by the Ocean Plan, chapter II, B.1.a., as "within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline".

³ State Water Resources Control Board (State Water Board) Resolution No. 88-63 (Sources of Drinking Water Policy) requires that, with certain exceptions, the Santa Ana Water Board assign the municipal and domestic water supply use to water bodies. Based on the exception criteria specified in Resolution No. 88-63, the Santa Ana Water Board excepted the nearshore and offshore zones of the ocean from the municipal and domestic supply beneficial use.

2. Thermal Plan. The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972 and amended this plan on September 18, 1975. This plan contains temperature objectives for coastal waters.

3. California Ocean Plan. The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, 2015, and 2018. The State Water Board adopted the latest amendment on August 7, 2018, and it became effective on March 22, 2019. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean waters of the state to be protected as summarized below:

Table F-5. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of the Order implement the Ocean Plan.

4. **Alaska Rule.** On March 30, 2000, U.S. EPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (40 CFR 131.21, 65 FR 24641, (April 27, 2000).) Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to U.S. EPA after May 30, 2000, must be approved by U.S. EPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to U.S. EPA by May 30, 2000, may be used for CWA purposes, whether or not approved by U.S. EPA.
5. **Antidegradation Policy.** Pursuant to 40 CFR section 131.12, requires that the state water quality standards must include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing high quality waters be maintained unless degradation is justified based on specific findings. The Santa Ana Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the federal antidegradation provision in 40 CFR section 131.12 and State Water Board Resolution 68-16.
6. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state, including protecting rare and endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on the CWA Section 303(d) List

Under CWA section 303(d), states are required to review, make changes as necessary, and submit to U.S. EPA a list identifying waterbodies not meeting water quality standards and the water quality parameter (i.e., pollutant) not being met (303(d) List). On April 6, 2018, U.S. EPA approved California's 2014 and 2016 303(d) List prepared by the State Water Board. The Huntington Beach State Park is included in the 303(d) list for polychlorinated biphenyls (PCBs). The nearshore and offshore zones of Huntington Beach State Park are the immediately affected receiving waters of discharges from the Facility. A total maximum daily load (TMDL) for PCBs is required but has not been established yet. As such, effluent limitations for PCBs have been established for the Facility until applicable waste load allocations are assigned in a TMDL. A TMDL to address the impairment is not currently scheduled for development.

E. Other Plans, Policies, and Regulations

1. CWA Section 316(b) Applicability

Section 316(b) of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. The Facility is not subject to the requirements of section 316(b). While the HBGS is subject to the requirements of CWA section 316(b), the Facility will not use intake water for the purpose of cooling and therefore does not meet the criteria for applicability in 40 CFR part 125, subparts I and J.

2. Water Code Section 13142.5(b) Applicability and Compliance

During the renewal of this Order, the Santa Ana Water Board evaluated the proposed Facility's operations for consistency with Water Code section 13142.5(b). Water Code section 13142.5(b) requires new industrial facilities using seawater for processing to use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. The Santa Ana Water Board conditionally finds that the Discharger's proposed site, design, technology, and mitigation measures are the best available feasible to minimize intake and mortality of all forms of marine life based on the information available (See Attachment G.) The Santa Ana Water Board's determination regarding mitigation is conditioned on the Discharger's satisfaction of the requirements of the MLMP Schedule in Attachment K. The Discharger's proposed mitigation is based on currently available data and information, and further studies and data collection are required to finalize the Discharger's mitigation project. The MLMP Schedule requires the Discharger to submit supplemental information and plans and establishes deadlines for the Discharger to submit the information. Provided that the Discharger satisfies the requirements of the MLMP Schedule, the condition will be satisfied. If the Discharger does not satisfy the requirements of the MLMP Schedule, the Discharger must submit a new request for a Water Code section 13142.5(b) determination for mitigation.

3. Human Right to Water Policy

It is the "established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." (Water Code, § 106.3, subd. (a).) All relevant state agencies shall consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when they are pertinent to these uses. (*Id.*, § 106.3, subd. (b).) This state policy does not directly apply to the Order as it is a permitting action. The Santa Ana Water Board, however, has adopted the human right to water as a core value and resolved that it will continue to consider the human right to water in all activities that could affect existing or potential sources of drinking water, including permitting actions. (Santa Ana Water Board Resolution R8-2019-0078.) In adopting the Order, the Santa Ana Water Board has considered the human right to water policy. The Order is consistent with and promotes the human right to water policy in that it establishes requirements for the intake of seawater and discharge of brine for a potential source of drinking water that could improve the reliability of water supply in Orange County. Though Orange County Water District (OCWD) projects an initial increase in residential

water costs to improve water reliability, the desalinated water could result in cost savings in the future.

Safe and Clean Water. Municipal and Domestic Supply (MUN) is not among the beneficial uses of the Pacific Ocean, so the discharge from the Facility will not impact a drinking water supply. MUN is, however, a beneficial use of the Orange County groundwater basin. If OCWD decides to inject the desalinated water from the Facility into the Orange County groundwater basin, OCWD will need to obtain and comply with waste discharge requirements from the Santa Ana Water Board that protect the MUN use and the other beneficial uses of the groundwater. If the desalinated water is directly distributed to customers, the appropriate water agency will need to have a permit from the State Water Board's Division of Drinking Water and comply with drinking water standards. Additionally, the Facility's reverse osmosis treatment system will need to be commissioned by the Division of Drinking Water and meet safe drinking water standards. These elements are designed to ensure that water delivered to customers will not pose a threat to human health and will be of acceptable color, odor, and taste.

Affordable Water. Increasing the reliability of water supply with the addition of desalinated water will result in some increase in the cost of water: OCWD estimates that adding the desalinated water to their water supply portfolio will result in a rate increase of \$3–6 per month for a typical residential water bill. Although the desalinated water from the Facility will initially be more expensive than other water supply alternatives, OCWD projects that at some point in the future the cost of desalinated water will be cheaper than imported water, thus affording a cost savings for customers in the future. As indicated in the Department of Water Resources Disadvantaged Communities Mapping Tool, there are disadvantaged communities in Orange County. The public process for the adoption of the Order provided opportunities for stakeholders, including disadvantaged communities, to provide meaningful input on the requirements in the Order that affect their communities. Stakeholders will also have opportunities to participate in any hearings on proposed rate increases at their local water supply agencies.

The Santa Ana Water Board understands that for the water agencies to meet their objective to reduce reliance on imported water from either Northern California or the Colorado River and replace it with a drought-resistant, local source of water, there will be added costs to ratepayers, at least until such time that OCWD's projected cost savings are realized. The projected rate increase for residential water bills could affect the affordability of water for some residential customers. However, the Santa Ana Water Board does not set drinking water rates and it is not within the purview of the Board to determine whether the value of increasing the reliability of water supply by adding a drought-resistant, local source justifies an interim increase in water costs; that is a decision for the water supply agencies and they will need to answer to their ratepayers. OCWD's stated mission is to provide a reliable, high quality water supply in a cost-effective and environmentally responsible manner, and OCWD has indicated that it will need to determine whether the reliability and security benefits of the desalinated water outweigh the additional costs before entering into a water purchase agreement. (OCWD letter to Santa Ana Water Board, dated June 26, 2020.) In making its determination, the Santa Ana Water Board encourages OCWD to specifically consider the impacts the additional costs will have on disadvantaged communities.

The requirements of this Order could affect the ultimate price of the desalinated water in a water purchase agreement. However, the costs of compliance with this Order will account for a very small fraction of the total cost of the desalinated water. Moreover, the Order's requirements for the discharge of brine and intake of seawater are necessary to comply with applicable federal and state requirements. The requirements protect water quality and the marine environment and justify the costs of desalinated water that are attributable to compliance with the Order.

IV. ACCESSIBLE WATER. AS A LOCAL, DROUGHT-PROOF WATER SUPPLY, THE DESALINATED WATER WILL INCREASE THE RELIABILITY OF ORANGE COUNTY'S WATER SUPPLY HELPING TO ENSURE CONTINUED ACCESS TO AN ADEQUATE WATER SUPPLY FOR DOMESTIC USE. OCWD HAS INDICATED THAT THE DESALINATED WATER FROM THE FACILITY WILL DIVERSIFY OCWD'S WATER PORTFOLIO AND IMPROVE THE RELIABILITY AND SECURITY OF THE REGION'S WATER SUPPLY. OCWD'S WATER SUPPLY PORTFOLIO COULD BE DIRECTLY IMPACTED AND REDUCED DUE TO EFFECTS OF CLIMATE CHANGE, SUCH AS PROLONGED DROUGHT. THE DESALINATED WATER FROM THE FACILITY WILL BE CLIMATE RESILIENT AND WILL HELP PROTECT AGAINST SHORTAGES DUE TO REDUCED SUPPLIES FROM OTHER WATER SOURCES. (OCWD LETTER TO SANTA ANA WATER BOARD, DATED JULY 16, 2020.)
RATIONALE FOR EFFLUENT LIMITATIONS, DISCHARGE AND INTAKE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of discharged pollutants is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality objectives to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

The discharge prohibitions in the Order are based on the CWA, Basin Plan, Ocean Plan, State Water Board's plans and policies, U.S. EPA guidance and regulations, and the previous prohibitions contained in Order No. R8-2012-0007. The discharge prohibitions are consistent with the discharge prohibitions set for other discharges regulated by WDRs adopted by the Santa Ana Water Board.

1. Prohibitions III.A, III.B, and III.C are based on 40 CFR section 122.21(a), duty to apply, and Water Code section 13260, which requires filing a ROWD before discharges can occur. Discharges not described in the Discharger's ROWD, and subsequently also not regulated in this Order, are prohibited.
2. Prohibitions III.D, III.E, and III.F implement discharge prohibitions that are applicable under the Ocean Plan.
3. Prohibition III.I is consistent with chapter II.M.2.e of the Ocean Plan, which requires the Discharger to fully mitigate for intake and mortality of marine life for the operational lifetime of the Facility. This prohibition ensures that the Discharger will begin implementation of mitigation concurrent with the operation of the Facility, and thus avoids unmitigated operational impacts. Under this prohibition,

the Discharger may not discharge unless and until (1) the Discharger has submitted the supplemental plans for the Final MLMP in accordance with the MLMP Schedule (Attachment K); (2) the Santa Ana Water Board has approved the Discharger's supplemental plans; (3) the Discharger has obtained all permits and other governmental approvals necessary to implement all components of the approved mitigation project (including the components included in supplemental plans required under the MLMP Schedule (Attachment K)); and (4) the Discharger has begun dredging of the Bolsa Chica inlet in accordance with the schedule approved by the Board (Attachment K, Table K-1, Task 1.A.viii).

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by the Order must meet minimum federal technology-based requirements based on Table 4 of the California Ocean Plan and/or best professional judgment (BPJ) in accordance with 40 CFR section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- a.** Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b.** Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c.** Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works (POTWs) to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.
- d.** New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines, and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the Santa Ana Water Board must consider specific factors outlined in 40 CFR section 125.3.

2. Applicable Technology-Based Effluent Limitations

Table 4 of the Ocean Plan establishes technology-based effluent limitations for POTWs and industrial discharges for which effluent limitation guidelines have not been established (including the discharge of concentrated seawater from the desalination facility). Order No. R8-2012-0007 established numeric effluent limitations at Discharge Point 001 based on Table 4 of the Ocean Plan.

Table 4 of the Ocean Plan requires dischargers to, as a monthly average, remove 75 percent of suspended solids from the influent stream before discharging wastewater to the Pacific Ocean, except that the effluent limitation to be met shall not be less than 60 mg/L. Because the seawater desalination facility is not a POTW, an effluent limitation of 60 mg/L is more appropriate and has been established for the desalination facility discharge. The technology-based effluent limitations from the Ocean Plan are summarized below in Table F-6.

Table F-6. Summary of Technology-Based Effluent Limitations

Parameter	Units ¹	Effluent Limitations			
		Monthly Average	Weekly Average	Instantaneous Minimum	Instantaneous Maximum
Oil & Grease	mg/L	25	40	--	75
	lbs/day	13,000	20,900	--	--
Total Suspended Solids (TSS)	mg/L	60 ²	--	--	--
	lbs/day	31,300	--	--	--
Settleable Solids	ml/l	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	pH units	--	--	6.0	9.0

¹ MER (lbs/day) = 8.34 x Q x C, where Q is flow rate of 62.5 MGD and C is the concentration in mg/L.

² Table 4 of the Ocean Plan requires dischargers to, as a monthly average, remove 75% of suspended solids from the influent stream before discharging wastewater to the Pacific Ocean, except that the effluent limitation to be met shall not be less than 60 mg/L. Because this Facility is not a POTW, an effluent limitation of 60 mg/L is appropriate and established for the Facility's discharge.

C. Water Quality-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b) and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

As required by 40 CFR Section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the beneficial uses of the receiving water as specified in the Basin Plan and achieve applicable water quality objectives that are contained in the Basin Plan, Ocean Plan, and other state plans and policies.

2. **Applicable Beneficial Uses and Water Quality Criteria and Objectives**

The Basin Plan and Ocean Plan designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters.

4. **Basin Plan.** The beneficial uses specified in the Basin Plan applicable to the Pacific Ocean are summarized in section III.C.1 of this Fact Sheet. The Basin Plan incorporates by reference the requirements of the Ocean Plan whereby it states, "*The State Board's Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan), and any revisions thereto shall also apply to all ocean waters of the Region.*"

5. **Ocean Plan.** As noted in section III.C of this Fact Sheet, the State Water Board adopted an Ocean Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Ocean Plan. The beneficial uses applicable to the Pacific Ocean are summarized in section III.C.1 of this Fact Sheet. The Ocean Plan includes both narrative and numeric water quality objectives applicable to the receiving water.

Table 3 of the Ocean Plan (also known as Table B in previous editions of the Ocean Plan) includes the following water quality objectives for toxic pollutants and whole effluent toxicity:

- i. 6-month median, daily maximum, and instantaneous maximum objectives for 21 chemicals and chemical characteristics, including total residual chlorine and chronic toxicity, for the protection of marine aquatic life.
- ii. 30-day average objectives for 20 non-carcinogenic chemicals for the protection of human health.

- iii. 30-day average objectives for 42 carcinogenic chemicals for the protection of human health.
- iv. Daily maximum objectives for acute and chronic toxicity.

Additionally, the Ocean Plan establishes receiving water objectives for salinity within the receiving water and effluent for desalination facilities.

3. **Determining the Need for WQBELs**

Order No. R8-2012-0007 contained effluent limitations based on implementing Ocean Plan Table 3 receiving water standards for non-conventional and toxic pollutants. The Facility is not operational, so no effluent data are presently available. The Discharger submitted pilot plant effluent data developed using HBGS effluent, estimated concentrations associated with reverse osmosis concentrate, and estimated concentrations for filter backwash water in the Facility's ROWD. The data were used to develop estimated concentrations with which to perform a reasonable potential analysis (RPA).

a. RPA Methodology

The need for effluent limitations based on water quality objectives in Table 3 of the Ocean Plan was evaluated in accordance with 40 CFR section 122.44(d) and guidance for statistically determining the "reasonable potential" for a discharged pollutant to exceed an objective as outlined in Appendix VI of the Ocean Plan. The statistical approach combines knowledge of effluent variability (as estimated by a coefficient of variation) with the uncertainty due to a limited amount of effluent data to estimate a maximum effluent value at a high level of confidence. This estimated maximum effluent value is based on a lognormal distribution of daily effluent values. Projected receiving water values (based on the estimated maximum effluent value or the reported maximum effluent value and minimum probable initial dilution) can then be compared to the appropriate objective to determine the potential for an exceedance of that objective and the need for an effluent limitation.

According to the Ocean Plan, the RPA can yield three endpoints:

- Endpoint 1: An effluent limitation is required, and monitoring is required;
- Endpoint 2: An effluent limitation is not required, and the Santa Ana Water Board may require monitoring; or
- Endpoint 3: The RPA is inconclusive, monitoring is required, and an existing effluent limitation may be retained, or a permit reopener clause may be included to allow inclusion of an effluent limitation if future monitoring warrants the inclusion.

b. Minimum Initial Dilution

The implementation provisions for Table 3 in chapter III.C of the Ocean Plan specify that the minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates are to be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that

no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

Appendix NNNNN to the ROWD describes results of hydrodynamic modeling under worst-case discharge conditions. In evaluating 62.5 MGD discharge flow and oceanographic conditions, the modeling simulated a dilution condition wherein the negatively buoyant plume is discharged via a 14-port diffuser and will sink to the seabed and flow down gradient over a large distance, well into the far field of the receiving water environment, without resolving initial dilution conditions. However, sufficient dilution for the Discharger to comply with water quality objectives for salinity and other pollutants is estimated at a 15:1 dilution credit. RPA procedures and WQBEL calculation documented herein were performed based on a dilution credit of 15:1.

c. RPA for Pollutants in Table 3 of the Ocean Plan

Effluent data submitted to the Santa Ana Water Board in Form 2D of the ROWD was considered in the RPA. The dilution credits applicable to the ocean outfall (15:1) were considered in order to evaluate reasonable potential in accordance with the procedures contained in the Ocean Plan.

For all of the Table 3 parameters, except PCBs, evaluation using the State Water Board's *RPcalc* 2.2 software tool yielded an Endpoint 3 result, meaning the RPA was inconclusive. The Ocean Plan indicates that monitoring for the pollutant is required and also indicates that any existing effluent limitation for a pollutant contained in Order No R8-2012-0007 shall be retained in the permit. Order No. R8-2012-0007 included WQBELs for ammonia, arsenic, cadmium, chlorinated phenolic compounds, chromium (VI), chronic toxicity, copper, cyanide, lead, mercury, non-chlorinated phenolic compounds, nickel, silver, total residual chlorine, and zinc. As the RPA for these constituents resulted in Endpoint 3, this Order includes effluent limitations for the parameters in Table F-7. Additionally, as previously discussed, the receiving water is impaired for PCBs. To ensure protection of applicable water quality, this permit establishes water quality-based effluent limits based on "other information" (Step 13 of the RPA procedures in the Ocean Plan) for PCBs until an applicable waste load allocation is developed in a total maximum daily load. The Order does not include effluent limitations for other pollutants displaying Endpoint 3; instead, the Order includes performance goals and monitoring requirements for those pollutants.

A summary of the RPA results is provided below:

Table F-7. RPA Results Summary

Pollutant	Units	n ^a	MEC ^{b, c}	Most Stringent Criteria	Background	RPA Endpoint ^d
Arsenic, Total Recoverable	µg/L	1	5.0	8	3	Endpoint 3

Pollutant	Units	n ^a	MEC ^{b, c}	Most Stringent Criteria	Background	RPA Endpoint ^d
Cadmium, Total Recoverable	µg/L	1	<0.5	1	0	Endpoint 3
Chromium (Hexavalent), Total Recoverable	µg/L	e	e	2	0	Endpoint 3
Copper, Total Recoverable	µg/L	1	3.0	3	2	Endpoint 3
Lead, Total Recoverable	µg/L	1	1.0	2	0	Endpoint 3
Mercury	µg/L	1	<0.2	0.04	0.0005	Endpoint 3
Nickel, Total Recoverable	µg/L	1	19	5	0	Endpoint 3
Selenium, Total Recoverable	µg/L	1	<0.4	15	0	Endpoint 3
Silver, Total Recoverable	µg/L	1	<0.5	0.7	0.16	Endpoint 3
Zinc, Total Recoverable	µg/L	1	12	20	8	Endpoint 3
Cyanide	µg/L	1	<50	1	0	Endpoint 3
Total Chlorine Residual	µg/L	e	e	2	0	Endpoint 3
Ammonia	µg/L	e	e	600	0	Endpoint 3
Acute Toxicity	TUa	e	e	0.3	0	Endpoint 3
Chronic Toxicity	TUc	e	e	1	0	Endpoint 3
Phenolic Compounds (non-chlorinated) ^f	µg/L	e	e	30	0	Endpoint 3
Chlorinated Phenolics ^g	µg/L	e	e	1	0	Endpoint 3
Endosulfan	µg/L	1	<0.03	0.009	0	Endpoint 3
Endrin	µg/L	1	<0.1	0.002	0	Endpoint 3
HCH ^h	µg/L	1	<0.8	0.004	0	Endpoint 3
Acrolein	µg/L	1	<0.5	220	0	Endpoint 3
Antimony	µg/L	1	<5	1200	0	Endpoint 3
Bis(2-chloroethoxy) methane	µg/L	1	<5	4.4	0	Endpoint 3
Bis(2-chloroisopropyl) ether	µg/L	1	<5	1200	0	Endpoint 3
Chlorobenzene	µg/L	1	<0.5	570	0	Endpoint 3
Chromium (III)	µg/L	e	e	190,000	0	Endpoint 3
Di-n-butyl-phthalate	µg/L	1	<5	3,500	0	Endpoint 3
Dichlorobenzenes	µg/L	e	e	5,100	0	Endpoint 3
Diethyl phthalate	µg/L	1	<5	33,000	0	Endpoint 3

Pollutant	Units	n ^a	MEC ^{b, c}	Most Stringent Criteria	Background	RPA Endpoint ^d
Dimethyl phthalate	µg/L	1	<5	820,000	0	Endpoint 3
4,6-dinitro-2-methylphenol	µg/L	1	<10	220	0	Endpoint 3
2,4-dinitrophenol	µg/L	1	<20	4.0	0	Endpoint 3
Ethylbenzene	µg/L	1	<0.5	4,100	0	Endpoint 3
Fluoranthene	µg/L	1	<5	15	0	Endpoint 3
Hexachlorocyclopentadiene	µg/L	1	<1	58	0	Endpoint 3
Nitrobenzene	µg/L	1	<5	4.9	0	Endpoint 3
Thallium	µg/L	1	<0.5	2	0	Endpoint 3
Toluene	µg/L	1	<0.5	85,000	0	Endpoint 3
Tributyltin	µg/L	1	<5	0.0014	0	Endpoint 3
1,1,1-trichloroethane	µg/L	1	<0.5	540,000	0	Endpoint 3
Acrylonitrile	µg/L	1	<0.5	0.10	0	Endpoint 3
Aldrin	µg/L	1	<0.075	0.000022	0	Endpoint 3
Benzene	µg/L	1	<0.5	5.9	0	Endpoint 3
Benzidine	µg/L	1	<5	0.000069	0	Endpoint 3
Beryllium	µg/L	1	<0.3	0.033	0	Endpoint 3
Bis(2-chloroethyl) ether	µg/L	1	<5	0.045	0	Endpoint 3
Bis(2-ethylhexyl) phthalate	µg/L	1	<5	3.5	0	Endpoint 3
Carbon tetrachloride	µg/L	1	<0.5	0.90	0	Endpoint 3
Chlordane	µg/L	1	<2	0.000023	0	Endpoint 3
Chlorodibromomethane	µg/L	1	<0.5	8.6	0	Endpoint 3
Chloroform	µg/L	1	<0.5	130	0	Endpoint 3
DDT ⁱ	µg/L	1	<3.05	0.00017	0	Endpoint 3
1,4-dichlorobenzene	µg/L	1	<5	18	0	Endpoint 3
3,3'-dichlorobenzidine	µg/L	1	<5	0.0081	0	Endpoint 3
1,2-dichloroethane	µg/L	1	<0.5	28	0	Endpoint 3
1,1-dichloroethylene	µg/L	1	<0.5	0.9	0	Endpoint 3
Dichlorobromomethane	µg/L	1	<0.5	6.2	0	Endpoint 3
Dichloromethane	µg/L	1	<0.5	450	0	Endpoint 3
1,3-dichloropropene	µg/L	1	<0.5	8.9	0	Endpoint 3
Dieldrin	µg/L	1	<0.02	0.00004	0	Endpoint 3
2,4-dinitrotoluene	µg/L	1	<5	2.6	0	Endpoint 3
1,2-diphenylhydrazine	µg/L	1	<5	0.16	0	Endpoint 3

Pollutant	Units	n ^a	MEC ^{b, c}	Most Stringent Criteria	Background	RPA Endpoint ^d
Halomethanes ^j	µg/L	^e	^e	130	0	Endpoint 3
Heptachlor	µg/L	1	<0.1	0.00005	0	Endpoint 3
Heptachlor epoxide	µg/L	1	<0.1	0.00002	0	Endpoint 3
Hexachlorobenzene	µg/L	1	<0.5	0.00021	0	Endpoint 3
Hexachlorobutadiene	µg/L	1	<5	14	0	Endpoint 3
Hexachloroethane	µg/L	1	<5	2.5	0	Endpoint 3
Isophorone	µg/L	1	<5	730	0	Endpoint 3
N-nitrosodimethylamine	µg/L	1	<5	7.3	0	Endpoint 3
N-nitrosodi-N-propylamine	µg/L	1	<5	0.38	0	Endpoint 3
N-nitrosodiphenylamine	µg/L	1	<5	2.5	0	Endpoint 3
PAHs ^k	µg/L	1	<5	0.0088	0	Endpoint 3
PCBs ^l	µg/L	1	<0.1	0.000019	0	Endpoint 1
TCDD equivalents ^m	µg/L	1	ND	3.9x10 ⁻⁹	0	Endpoint 3
1,1,2,2-tetrachloroethane	µg/L	1	<0.5	2.3	0	Endpoint 3
Tetrachloroethylene	µg/L	1	<0.5	2.0	0	Endpoint 3
Toxaphene	µg/L	1	<1	0.00021	0	Endpoint 3
Trichloroethylene	µg/L	1	<0.5	27	0	Endpoint 3
1,1,2-trichloroethane	µg/L	1	<0.5	9.4	0	Endpoint 3
2,4,6-trichlorophenol	µg/L	1	<10	0.29	0	Endpoint 3
Vinyl chloride	µg/L	1	<0.5	36	0	Endpoint 3

- Number of data points available for the RPA.
- If there is a detected value, the highest reported value is summarized in the table. If there are no detected values, the lowest MDL is summarized in the table.
- Note that the reported Maximum Effluent Concentration (MEC) does not account for dilution. The RPA does account for dilution; therefore, it is possible for a parameter with an MEC in exceedance of the most stringent criteria not to present an Endpoint 1.
- End Point 1 – RP determined, limit required, monitoring required.
End Point 2 – Discharger determined not to have RP, monitoring may be established.
End Point 3 – RPA was inconclusive, carry over previous limitations if applicable, and establish monitoring.
- No monitoring data or estimated pollutant concentrations were available for this pollutant.
- Non-chlorinated phenolic compounds represent the sum of 2-nitrophenol; phenol; 2,4-dimethylphenol; 2,4-dinitrophenol; 2-methyl-4,6-dinitrophenol; and 4-nitrophenol.
- Chlorinated phenolic compounds represent the sum of 2-chlorophenol; 2,4-dichlorophenol; 2,4,6-trichlorophenol; 4-chloro-3-methylphenol; and pentachlorophenol.
- HCH shall mean the sum of alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.
- DDT shall mean the sum of 4,4'-DDT, 2,4'-DDT, 4,4'-DDE, 2,4'-DDE, 4,4'-DDD, and 2,4'-DDD.

Pollutant	Units	n ^a	MEC ^{b, c}	Most Stringent Criteria	Background	RPA Endpoint ^d
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- j. Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).
- k. PAHs shall mean the sum of acenaphthylene; anthracene; 1,2-benzanthracene; 3,4-benzofluoranthene; benzo(k)fluoranthene; 1,12-benzoperylene; benzo(a)pyrene; chrysene; dibenzo(a,h)anthracene; fluorene; indeno(1,2,3-cd)pyrene; phenanthrene; and pyrene.
- l. PCBs shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.
- m. TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below. U.S. EPA method 1613 may be used to analyze dioxin and furan congeners.
- $$\text{Dioxin-TEQ (TCDD Equivalents)} = \sum (C_x \times \text{TEF}_x)$$

Where:

C_x = concentration of dioxin or furan congener x

TEF_x = TEF for congener x

4. WQBEL Calculations

a. Concentration Calculation

Table 3 of the Ocean Plan includes water quality objectives for the protection of marine aquatic life, and these objectives are used to establish effluent limits for discharges from this Facility.

The Ocean Plan considers the "minimum probable initial dilution" in determining effluent limitations for toxic pollutants. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge. For the purposes of the Ocean Plan, minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates must be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. This Order establishes an "initial dilution" credit, applicable to Table 3 Ocean Plan parameters of 15:1.

To establish effluent limits for discharges from this Facility, a minimum probable initial dilution of 15 to 1 is used.

The following equation from chapter III.C.4.a. of the Ocean Plan was used to calculate all concentration-based effluent limitations.

$$C_e = C_o + D_m (C_o - C_s)$$

Where:

C_e = the effluent concentration limit, $\mu\text{g/L}$

C_o = the concentration (water quality objective) to be met at the completion of initial dilution, $\mu\text{g/L}$

C_s = background seawater concentration, $\mu\text{g/L}$

Dm = minimum probable initial dilution expressed as parts seawater per part wastewater.

Table 5 of the Ocean Plan establishes background concentrations for some pollutants to be used when determining reasonable potential (represented as “Cs”). In accordance with Table 3 implementing procedures, Cs equals zero for all pollutants not established in Table 3. The background concentrations provided in Table 3 are summarized below:

Table F-8. Pollutants Having Background Concentrations

Pollutant	Background Seawater Concentration
Arsenic	3 µg/L
Copper	2 µg/L
Mercury	0.0005 µg/L
Silver	0.16 µg/L
Zinc	8 µg/L

As an example, effluent limitations for copper are determined as follows:

Water quality objectives from the Ocean Plan for copper are:

Table F-9. Example Parameter Water Quality Objectives

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Copper	µg/L	3	12	30

Using the equation, $C_e = C_o + D_m (C_o - C_s)$, effluent limitations/performance goals are calculated as follows:

Copper

$$C_e = 3 + 15 (3 - 2) = 18 \text{ (6-Month Median)}$$

$$C_e = 12 + 15 (12 - 2) = 162 \text{ (Daily Maximum)}$$

$$C_e = 30 + 15 (30 - 2) = 450 \text{ (Instantaneous Maximum)}$$

Based on the implementing procedures described above, effluent limitations have been calculated for Table 3 pollutants from the Ocean Plan that have reasonable potential or have inconclusive results and previously had effluent limitations.

40 CFR section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., California Toxics Rule (CTR) criteria and maximum contaminant levels (MCLs)) and mass, limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were computed based on the maximum daily flow rate (62.5 MGD).

Mass-based effluent limitations were calculated using the following equation:

$$\text{MER (lbs/day)} = \text{permitted flow (MGD)} \times \text{pollutant concentration (mg/L)} \times 8.34$$

b. Whole Effluent Toxicity

Whole effluent toxicity (WET) protects the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “no toxics in toxic amounts” criterion while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth. This permit establishes effluent limitations for chronic toxicity to account for uncertainty associated with the estimated effluent characterization and aggregate effects of the pollutants present in the effluent. A pollutant at a low concentration could show chronic effects but no acute effects. Thus, chronic toxicity represents a more stringent compliance threshold than acute toxicity. Monitoring for acute toxicity and performance goals have been established to further evaluate potential impacts to the receiving water.

The Ocean Plan establishes a daily maximum acute toxicity objective of 0.3 TU_a and a chronic toxicity objective of 1.0 TU_c. In 2010, U.S. EPA endorsed the peer-reviewed Test of Significant Toxicity (TST) hypothesis testing approach in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010) as an improved hypothesis-testing tool to evaluate WET data. U.S. EPA concluded that the TST is a superior approach for addressing statistical uncertainty when used in combination with U.S. EPA’s toxicity testing methods and is implemented in federal permits issued by EPA Region 9. This permit implements U.S. EPA’s TST approach for evaluating compliance with WET.

This Order contains requirements to monitor and evaluate toxicity using EPA’s TST approach at an in-stream waste concentration of 6.25 percent for acute and chronic toxicity, as described in section V of Attachment E. The IWC for toxicity is based on a minimum month initial dilution of 15:1.

c. Summary of WQBELs Discharge Point 001

The discharge of wastes shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location M-001 as described in the Monitoring & Reporting Program (Attachment E).

Table F-10. Summary of WQBELs on Table 3 of the Ocean Plan

Parameter	Units of Measurement	Average Monthly	6-Month Median	Daily Maximum	Instantaneous Maximum
	µg/L	--	83	470	1,200

Parameter	Units of Measurement	Average Monthly	6-Month Median	Daily Maximum	Instantaneous Maximum
Arsenic, Total Recoverable	lbs/day	--	43	240	---
Cadmium, Total Recoverable	µg/L	--	16	64	160
	lbs/day	--	8.3	33	---
Chromium (Hexavalent), Total	µg/L	--	32	130	320
	lbs/day	--	17	67	---
Copper, Total Recoverable	µg/L	--	18	160	450
	lbs/day	--	9.4	84	---
Lead, Total Recoverable	µg/L	--	32	130	320
	lbs/day	--	17	67	---
Mercury, Total Recoverable	µg/L	--	0.63	2.6	6.4
	lbs/day	--	0.33	1.3	---
Nickel, Total Recoverable	µg/L	--	80	320	800
	lbs/day	--	42	170	---
Silver, Total Recoverable	µg/L	--	8.8	42	110
	lbs/day	--	4.6	22	---
Zinc, Total Recoverable	µg/L	--	200	1,200	3,100
	lbs/day	--	100	600	---
Cyanide, Total	µg/L	--	16	64	160
	lbs/day	--	8.3	33	---
Total Residual Chlorine	µg/L	--	32	130	960
	lbs/day	--	17	67	---
Chronic Toxicity	Pass/Fail	--	---	"Pass" ³	---
Ammonia (Expressed as Nitrogen)	µg/L	--	9,600	38,000	96,000
	lbs/day	--	5,000	20,000	---
PCBs	µg/L	0.0003	--	--	--
	lbs/day	0.00016	--	--	--
Phenolic Compounds (non-chlorinated) ¹	µg/L	--	480	1,900	4,800
	lbs/day	--	250	1,000	---
Chlorinated Phenolics ²	µg/L	--	16	64	160
	lbs/day	--	8.3	33	---

Values rounded to two significant figures. To be conservative, 6-month median, daily maximum and instantaneous maximum mass emission values are computed using the maximum daily seawater desalination facility flow (filter backwash, concentrated seawater and rinse water) of 62.5 MGD.

¹ Non-chlorinated phenolic compounds represent the sum of 2,4-dimethylphenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, 2-methylphenol, 4-methylphenol, 2-nitrophenol, 4-nitrophenol, and phenol

² Chlorinated phenolic compounds represent the sum of 4-chloro-3-methylphenol, 2-chlorophenol, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol.

Water quality objectives for whole effluent toxicity represent EPA's TST method, as described in section V.A. of Attachment E.

³ Compliance with this chronic toxicity limitation is demonstrated by rejecting the null hypothesis and resulting in a TST "Pass" or "P", as specified in section V.A. of Attachment E, and section IV.A.1.c of this Order.

5. Performance Goals

Parameters that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives, or for which reasonable potential to cause or contribute to an exceedance of water quality objectives cannot be determined, are assigned performance goals. Performance goal parameters shall be monitored at Monitoring Location M-001. The performance goals in Table 6 below are not water quality-based effluent limitations (WQBELs) and are not enforceable as such.

Table F-11. Summary of Performance Standards Based on Table 3 of the Ocean Plan

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Selenium	µg/L	--	--	2.4E+03	9.6E+02	2.4E+02
	lbs/day	--	--	1.3E+03	5.0E+02	1.3E+02
Endosulfan	µg/L	--	--	4.3E-01	2.9E-01	1.4E-01
	lbs/day	--	--	2.3E-01	1.5E-01	7.5E-02
Endrin	µg/L	--	--	9.6E-02	6.4E-02	3.2E-02
	lbs/day	--	--	5.0E-02	3.3E-02	1.7E-02
HCH	µg/L	--	--	1.9E-01	1.3E-01	6.4E-02
	lbs/day	--	--	1.0E-01	6.7E-02	3.3E-02
Acrolein	µg/L	3.5E+03	--	--	--	--
	lbs/day	1.8E+03	--	--	--	--
Antimony	µg/L	1.9E+04	--	--	--	--
	lbs/day	1.0E+04	--	--	--	--
Bis(2-chloroethoxy) Methane	µg/L	7.0E+01	--	--	--	--
	lbs/day	3.7E+01	--	--	--	--
Bis(2-chloroisopropyl) ether	µg/L	1.9E+04	--	--	--	--
	lbs/day	1.0E+04	--	--	--	--
Chlorobenzene	µg/L	9.1E+03	--	--	--	--
	lbs/day	4.8E+03	--	--	--	--
Chromium (III)	µg/L	3.0E+06	--	--	--	--
	lbs/day	1.6E+06	--	--	--	--
Di-n-butyl Phthalate	µg/L	5.6E+04	--	--	--	--
	lbs/day	2.9E+04	--	--	--	--
Dichlorobenzenes	µg/L	8.2E+04	--	--	--	--
	lbs/day	4.3E+04	--	--	--	--
Diethyl Phthalate	µg/L	5.3E+05	--	--	--	--
	lbs/day	2.8E+05	--	--	--	--
	µg/L	1.3E+07	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Dimethyl Phthalate	lbs/day	6.8E+06	--	--	--	--
4,6-dinitro-2-methylphenol	µg/L	3.5E+03	--	--	--	--
	lbs/day	1.8E+03	--	--	--	--
2,4-dinitrophenol	µg/L	6.4E+01	--	--	--	--
	lbs/day	3.3E+01	--	--	--	--
Ethylbenzene	µg/L	6.6E+04	--	--	--	--
	lbs/day	3.4E+04	--	--	--	--
Fluoranthene	µg/L	2.4E+02	--	--	--	--
	lbs/day	1.3E+02	--	--	--	--
Hexachlorocyclopentadiene	µg/L	9.3E+02	--	--	--	--
	lbs/day	4.8E+02	--	--	--	--
Nitrobenzene	µg/L	7.8E+01	--	--	--	--
	lbs/day	4.1E+01	--	--	--	--
Thallium	µg/L	3.2E+01	--	--	--	--
	lbs/day	1.7E+01	--	--	--	--
Toluene	ug/l	1.4E+06	--	--	--	--
	lbs/day	7.1E+05	--	--	--	--
Tributyltin	µg/L	2.2E-02	--	--	--	--
	lbs/day	1.2E-02	--	--	--	--
1,1,1-trichloroethane	µg/L	8.6E+06	--	--	--	--
	lbs/day	4.5E+06	--	--	--	--
Acrylonitrile	µg/L	1.6E+00	--	--	--	--
	lbs/day	8.3E-01	--	--	--	--
Aldrin	µg/L	3.5E-04	--	--	--	--
	lbs/day	1.8E-04	--	--	--	--
Benzene	µg/L	9.4E+01	--	--	--	--
	lbs/day	4.9E+01	--	--	--	--
Benzidine	µg/L	1.1E-03	--	--	--	--
	lbs/day	5.8E-04	--	--	--	--
Beryllium	µg/L	5.3E-01	--	--	--	--
	lbs/day	2.8E-01	--	--	--	--
Bis(2-chloroethyl) Ether	µg/L	7.2E-01	--	--	--	--
	lbs/day	3.8E-01	--	--	--	--
Bis(2-ethylhexyl) Phthalate	µg/L	5.6E+01	--	--	--	--
	lbs/day	2.9E+01	--	--	--	--
	µg/L	1.4E+01	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Carbon Tetrachloride	lbs/day	7.5E+00	--	--	--	--
Chlorodane	µg/L	3.7E-04	--	--	--	--
	lbs/day	1.9E-04	--	--	--	--
Chlorodibromethane	µg/L	1.4E+02	--	--	--	--
	lbs/day	7.2E+01	--	--	--	--
Chloroform	µg/L	2.1E+03	--	--	--	--
	lbs/day	1.1E+03	--	--	--	--
DDT	µg/L	2.7E-03	--	--	--	--
	lbs/day	1.4E-03	--	--	--	--
1,4-dichlorobenzene	µg/L	2.9E+02	--	--	--	--
	lbs/day	1.5E+02	--	--	--	--
3,3'-dichlorobenzidine	µg/L	1.3E-01	--	--	--	--
	lbs/day	6.8E-02	--	--	--	--
1,2-dichloroethane	µg/L	4.5E+02	--	--	--	--
	lbs/day	2.3E+02	--	--	--	--
1,1-dichloroethylene	µg/L	1.4E+01	--	--	--	--
	lbs/day	7.5E+00	--	--	--	--
Dichlorobromomethane	µg/L	9.9E+01	--	--	--	--
	lbs/day	5.2E+01	--	--	--	--
Dichloromethane	µg/L	7.2E+03	--	--	--	--
	lbs/day	3.8E+03	--	--	--	--
1,3-dichloropropene	µg/L	1.4E+02	--	--	--	--
	lbs/day	7.4E+01	--	--	--	--
Dieldrin	µg/L	6.4E-04	--	--	--	--
	lbs/day	3.3E-04	--	--	--	--
2,4-dinitrotoluene	µg/L	4.2E+01	--	--	--	--
	lbs/day	2.2E+01	--	--	--	--
1,2-diphenylhydrazine	µg/L	2.6E+00	--	--	--	--
	lbs/day	1.3E+00	--	--	--	--
Halomethanes	µg/L	2.1E+03	--	--	--	--
	lbs/day	1.1E+03	--	--	--	--
Heptachlor	µg/L	8.0E-04	--	--	--	--
	lbs/day	4.2E-04	--	--	--	--
	µg/L	3.2E-04	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
Heptachlor Epoxide	lbs/day	1.7E-04	--	--	--	--
Hexachlorobenzene	µg/L	3.4E-03	--	--	--	--
	lbs/day	1.8E-03	--	--	--	--
Hexachlorobutadiene	µg/L	2.2E+02	--	--	--	--
	lbs/day	1.2E+02	--	--	--	--
Hexachloroethane	µg/L	4.0E+01	--	--	--	--
	lbs/day	2.1E+01	--	--	--	--
Isophorone	µg/L	1.2E+04	--	--	--	--
	lbs/day	6.1E+03	--	--	--	--
N-nitrosodimethylamine	µg/L	1.2E+02	--	--	--	--
	lbs/day	6.1E+01	--	--	--	--
N-nitrosodi-N-propylamine	µg/L	6.1E+00	--	--	--	--
	lbs/day	3.2E+00	--	--	--	--
N-nitrosodiphenylamine	µg/L	4.0E+01	--	--	--	--
	lbs/day	2.1E+01	--	--	--	--
PAHs	µg/L	1.4E-01	--	--	--	--
	lbs/day	7.3E-02	--	--	--	--
TCDD equivalents	µg/L	6.2E-08	--	--	--	--
	lbs/day	3.3E-08	--	--	--	--
1,1,2,2-tetrachloroethane	µg/L	3.7E+01	--	--	--	--
	lbs/day	1.9E+01	--	--	--	--
Tetrachloroethylene	µg/L	3.2E+01	--	--	--	--
	lbs/day	1.7E+01	--	--	--	--
Toxaphene	µg/L	3.4E-03	--	--	--	--
	lbs/day	1.8E-03	--	--	--	--
Trichloroethylene	µg/L	4.3E+02	--	--	--	--
	lbs/day	2.3E+02	--	--	--	--
1,1,2-trichloroethane	µg/L	1.5E+02	--	--	--	--
	lbs/day	7.8E+01	--	--	--	--
2,4,6-trichlorophenol	µg/L	4.6E+00	--	--	--	--
	lbs/day	2.4E+00	--	--	--	--
Vinyl Chloride	µg/L	5.8E+02	--	--	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Instantaneous Maximum	Daily Maximum	6-Month Median
	lbs/day	3.0E+02	--	--	--	--

6. Discharge Flow Limitation

Based on the ROWD and subsequent submittals by the Discharger, specific effluent flow characteristics were considered in the development of the conditions of the Order. Operations beyond those considered in the development of this Order may result in impairments or water quality criteria exceedances. Flow limitations have been established that are consistent with the Santa Ana Water Board's understanding of Discharger operations addressed under the Order.

Except during initial start-up operations and temporary maintenance operations, the discharge of concentrated seawater, filter backwash water, and subsequent rinse wastewater from the Facility to the HBGS discharge pipeline or to Discharge Point 001 in excess of a 12-Month Average Flow of 56.69 MGD or a maximum daily peak flow of 62.5 MGD, is prohibited. Total Facility discharge flows to the HBGS discharge pipeline, including temporary discharges of filtered pretreated water or discharges of unused dechlorinated product water, in excess of a 12-Month Average Flow of 126.7 MGD are prohibited.

7. Salinity

Chapter III.M.3.b.(2) of the Ocean Plan requires the implementation of an effluent limitation necessary to meet the receiving water limitation of a daily maximum of 2.0 parts per thousand (ppt) above natural salinity at the edge of the BMZ, which is not to exceed 100 meters (328 feet) from each discharge point.

The Discharger submitted a mixing zone study as Appendix NNNNN to the ROWD. The study found that discharges from their proposed multiport diffuser, conservative flow, and receiving water conditions would be able to achieve rapid mixing of the discharge and would meet the salinity receiving water limitation within a distance of 100 meters (328 feet) of Discharge Point 001 as required within Section III.M.3.b.(2) of the Ocean Plan. On the basis of Appendix NNNNN to the ROWD and consistent with Section III.M.3.b of the Ocean Plan, this Order establishes a BMZ of 100 meters (328 feet).

In determining the effluent limit(s) necessary to meet the receiving salinity water limitation at the edge of the BMZ, the Ocean Plan establishes the following formula:

$$C_e = (2.0 \text{ ppt} + C_s) + D_m(2.0 \text{ ppt})$$

Where:

C_e = the effluent concentration limit in ppt
 C_o = the salinity concentration to be met at the BMZ
 C_s = the natural background salinity (defined as a 20-year monthly mean)
 D_m = minimum probable initial dilution expressed as parts seawater per part brine discharge

Natural background salinity in the receiving water, using the nearby Orange County Sanitation District outfall as a monitoring station and data from 1980 through 2004, is approximately 33.5 ppt. Using the background salinity and authorized BMZ dilution credit of 15, the following salinity effluent limitation would result:

$$C_e = (2.0 \text{ ppt} + 33.5 \text{ ppt}) + 15 \times (2.0 \text{ ppt}) = 65.5 \text{ ppt}.$$

This Order establishes a daily average salinity effluent limitation of 65.5 ppt, protective of and consistent with the receiving water limits for salinity in the Ocean Plan.

D. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

Pursuant to the requirements of Water Code section 13142.5(b) and the Ocean Plan, the Discharger has substantially modified intake and outfall structures to minimize the intake and mortality of all forms of marine life. New effluent limits were calculated based on the modification to the outfall infrastructure and the change to a stand-alone operating mode. Given these changes, the direct comparison of the new effluent limits to the effluent limits in the previous permit is inappropriate and does not provide an accurate assessment of whether the new effluent limits are as stringent.

The previous order determined effluent limitations based on an initial dilution of 7.5:1, and a mixing zone distance of 1,000 feet. During the term of this Order, the Facility will install a new multiport diffuser capable of generating a higher level of dilution (15:1) and the discharge will be subject to a smaller mixing zone distance of 328 feet, which will result in a smaller area of impact overall. The Facility's use of the multiport diffuser for the discharge of the brine waste results in effluent limitations based on enhanced mixing in a smaller mixing zone, resulting in the effluent limits that are as stringent as the previous permit. Although the effluent limits in this Order are numerically lower than the limits in the previous order, they are as stringent in practice.

Furthermore, even if the numeric limits were construed as less stringent, the change is justified by exceptions to anti-backsliding. The installation of the multiport diffuser is a material and substantial alteration to the facility that was proposed after the issuance of the previous permit and justifies the application of a numerically less effluent limitations. Additionally, CWA section 303(d)(4)(B) allows for effluent limitations that are less stringent if the receiving water is in attainment with water quality standards and antidegradation conditions are met: the receiving water is in attainment with water quality standards, and the discharge meets all applicable antidegradation policy conditions. The monitoring requirements in the MRP (Attachment E) are designed to obtain additional information for parameters with performance goals to determine if reasonable potential exists for these parameters in future permit renewals and/or amendments. Based on these considerations, this Order complies with all applicable anti-backsliding requirements.

2. Antidegradation Policies

Pursuant to 40 CFR section 131.12, the state water quality standards must include an antidegradation policy that is consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy, where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless it is demonstrated that any degradation is consistent with the maximum benefit to the people of the State, will not unreasonably affect current or possible beneficial uses, and will not result in water quality less than prescribed in applicable policies.

A complete antidegradation analysis is required if the proposed activity results in a substantial increase in mass emissions of pollutants or if the activity results in significant impact to aquatic life. It is not necessary to do a complete antidegradation analysis if the reduction in water quality will be spatially localized or limited with respect to the waterbody. In such cases, a simple antidegradation analysis will suffice. A complete antidegradation analysis is not required—the impact of the Facility's discharge will be limited to the brine mixing zone and will not have a significant impact on water quality.

The Discharger conducted an Antidegradation Policy Analysis in 2006 that indicated that there would be a slight increase in salinity as the result of discharges from the Facility but that the change would be spatially localized and confined to the brine mixing zone. The design and technology used for the Facility's discharge infrastructure has been updated to comply with the Ocean Plan, and the discharge will still result in a slight increase in salinity that will be confined to brine mixing zone. This Order specifies an effluent limitation for salinity; based on this limit, the discharge will meet receiving water limitation outside of the mixing zone.

This Order allows for a small increase in the maximum daily flow (from 60.3 MGD in the 2012 Order to 62.5 MGD in this Order). This slight increase will accommodate changes to the design and operational specifications of the proposed desalination plant. During the term of the previous permit, the design was under development and discharges to the receiving water had not commenced; therefore, the permitted increase in flow rate does not provide for a lowering of water quality. Furthermore, the annual average flow of 56.69 MGD remains the same.

The final limitations in this Order hold the Discharger to performance levels that will not cause or contribute to an exceedance of the receiving water limitation or other applicable water quality objectives in the Ocean Plan. Compliance with these limitations and other requirement in the Order will protect current and future beneficial uses. Additionally, the monitoring requirements in the MRP, (Attachment E), are designed to measure compliance with the limitations and to obtain additional information for parameters with performance goals to determine if reasonable potential exists to include effluent limitations for these parameters in future permit renewals and/or amendments.

The cumulative impacts of the proposed changes to the Facility's operations, and the associated discharge flows are not anticipated to significantly impact receiving water quality, will be protective of water quality objectives and beneficial uses, will provide important economic and social development, and are consistent with the maximum

benefit to the people of the State. It is anticipated that the Facility will provide a drought-proof, local water supply of 50 MGD, which will decrease regional reliance on imported water supplies. Compliance with the requirements of the Order will result in the use of best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the state will be maintained. Based on these considerations, this Order is consistent with State and federal antidegradation requirements.

3. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. The TBELs consist of restrictions on TSS, pH, oil and grease, settleable solids, and turbidity, which are discussed in section IV.B of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by CWA. TBELs and WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures for calculating the individual WQBELs are based on the Ocean Plan, which was approved by U.S. EPA on February 14, 2006 and has since been subsequently amended. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR section 131.21(c)(1).

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

H. Intake and Discharge Specifications

Sections IV.B and IV.E of the Order provide narrative requirements for the intake of seawater and the discharge of effluent from the Facility. These provisions of the Order are necessary to implement the requirements specified in the Ocean Plan. The intake specifications implement chapter III.M.2.(d)(1) of the Ocean Plan; and discharge specifications implement chapter III.A.2 of the Ocean Plan.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The Ocean Plan contains numeric and narrative water quality objectives applicable to the coastal waters of California. Water quality objectives include an objective to maintain the high-quality waters pursuant to federal regulations (40 CFR section 131.12) and State Water Board Resolution No. 68-16. Receiving water limitations in this Order are included to ensure protection of beneficial uses of the receiving water and are based on the water quality objectives contained in the Ocean Plan. The salinity receiving water limit included in section V.A.1. of this Order implements Chapter III.M.3.b.(1) of the Ocean Plan.

The proposed mass effluent limits in section IV.C. above are based on maximum daily flow of 62.5 million gallons of total desalination facility effluent to the ocean.

B. Groundwater – Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits, in accordance with 40 CFR section 122.42, are provided in Attachment D to the Order.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

- a. The Santa Ana Water Board may reopen this Order to modify its provisions to incorporate the promulgation of new regulations by U.S. EPA or adoption of new regulations by the State Water Board or Santa Ana Water Board, including revisions to the Basin Plan or to the Ocean Plan.
- b. The Santa Ana Water Board may reopen this Order to include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a water quality objective in Table 3 of the Ocean Plan.
- c. The Santa Ana Water Board may reopen this Order to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in this Water Code section 13142.5(b) determination. The Santa Ana Water board may reopen this Order at any time for modification of provisions governing compliance with the receiving water limitation for salinity as set forth in chapter III.M.3 of the Ocean Plan.
- d. The Santa Ana Water Board may reopen this Order to modify the mitigation provisions required under Water Code section 13142.5(b) and chapter III.M.2.e of the Ocean Plan.

e. The Santa Ana Water Board may reopen this Order to modify, revoke and reissue, or terminate the Order for cause in accordance with the provisions of the Water Code and 40 CFR parts 122, 124, and 125 at any time prior to its expiration.

e.f. The Santa Ana Water Board may reopen this Order to remove the discharge and intake prohibitions in sections III.I and IV.B.12, respectively.

2. **Special Studies and Additional Monitoring Requirements**

a. Toxicity Reduction Requirements. This Order requires the Discharger to develop procedures to conduct Toxicity Identification and Reduction Evaluations. This provision is based on chapter III.C.10 of the Ocean Plan.

3. **Best Management Practices (BMPs) and Pollution Prevention**

a. BMPs. Section 402 of the CWA and U.S. EPA regulations 40 CFR 122.44 (k) authorize the requirement for BMPs in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. These measures are important tools for waste minimization and pollution prevention.

The Order requires the Discharger to maintain a BMP Plan that incorporates practices to achieve the objectives and specific requirements in the permit. The BMP Plan must be revised as new practices are developed for the facility.

The BMP Plan must be designed to prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants from ancillary activities to waters of the United States. The BMP Plan shall be consistent with the general guidance contained in the U.S. EPA Guidance Manual for Developing Best Management Practices (BMPs) (EPA 833-B-93-004). The Discharger shall maintain the BMP Plan in an up-to-date condition and shall amend the BMP Plan in accordance with 40 CFR sections 125.100 - 125.104, whenever there is a change in facility design, construction, operation, or maintenance that materially affects the potential for discharge from the Facility of significant amounts of hazardous or toxic pollutants into waters of the United States.

b. Pollutant Minimization Program. This provision is based on requirements contained in chapter III.C.9 of the Ocean Plan and Water Code section 13263.3 (d). The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

4. **Climate Change Action Plan**

Changing climate conditions may fundamentally alter the way desalination plants are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO₂) from human activity. The increased CO₂ emissions trigger changes to climatic patterns, which increase the intensity of sea level rise and coastal storm surges (Changes in Sea Level), lead to more erratic rainfall and local weather patterns (Changes in Weather Patterns), trigger a

gradual warming of freshwater and ocean temperatures (Changes in Water Temperature) and trigger changes to ocean water chemistry (Changes in Water pH).

This permit requires the Discharger to develop and implement a Climate Change Action Plan (CCAP) within 18 months of the effective date of this Order. The purpose of the CCAP is to project potential climate change impacts on the Facility and operations, and document steps to address potential impacts on the Facility.

5. Construction, Operation, and Maintenance Specifications

- a. Operation and Maintenance Manual.** This Order requires the Discharger to develop an Operation and Maintenance Manual prior to start of operations and specifies its periodic updates.

6. Special Provisions for POTWs – Not Applicable

7. Other Special Provisions – Not Applicable

8. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 CFR sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Santa Ana Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

The Discharger is required to conduct influent monitoring as described in Table 2 of Attachment E of this Order.

B. Effluent Monitoring

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are set forth in the MRP (Attachment E). This provision requires compliance with the MRP and is based on 40 CFR sections 122.44(i), 122.62, 122.63, and 124.5. The self-monitoring program (SMP) is a standard requirement in all NPDES permits (including this proposed Order) issued by the Santa Ana Water Board.

In addition to containing definitions of terms, the SMP specifies general sampling/analytical protocols and the requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the Water Code, and Santa Ana Water Board's policies. The MRP also contains a sampling program specific to the Discharger's treatment facility. It defines the sampling stations, monitoring frequency, pollutants to be monitored, and

additional reporting requirements. Pollutants to be monitored include all pollutants for which effluent limitations are specified.

This effluent monitoring program also includes monitoring requirements established for all Ocean Plan Table 3 parameters. This monitoring is necessary to collect sufficient information to conduct RPAs during future NPDES permit re-applications.

Although the Discharger will be discharging wastewater at one discharge point into the ocean outfall of AES, due to intermittent discharges of in-plant waste streams (RO treatment wastewater, filter backwash wastewater, RO flush wastewater), monitoring of these waste streams will be necessary to assure that discharges will meet water quality standards. The Discharger is required to conduct monitoring for certain constituents when in-plant waste streams (RO treatment wastewater, filter backwash wastewater, RO flush wastewater) are discharged.

C. WET Testing Requirements

WET is an indicator of the receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth. This permit establishes monitoring and reporting for chronic toxicity to evaluate compliance with effluent limitations and monitoring requirements for acute toxicity to confirm acute toxicity threshold assessments submitted by the Discharger.

Additionally, Chapter III.C.3.c.(4) of the Ocean Plan requires dischargers to conduct chronic toxicity testing if the minimum initial dilution of the effluent is below 100 to 1. The Facility has an initial dilution ratio of 15 to 1. Therefore, this Order includes monitoring requirements for chronic toxicity in the MRP (Attachment E).

D. Receiving Water Core Monitoring Requirements

The receiving water, sediment, and fish and epibenthic invertebrates' organisms monitoring requirements set forth below are designed to measure the effects of the Facility's discharge on the receiving ocean waters. The overall receiving water monitoring program is intended to answer the following questions:

- Does the receiving water meet water quality standards?
- Are the receiving water conditions getting better or worse over time?
- What are the effects of the discharge on the receiving water?
- What is the relative contribution of the Facility's discharge to pollution in the receiving water?

1. Surface Water

Monitoring is necessary to answer the following questions:

- Does the discharge cause an increase in salinity of >2.0 ppt above ambient conditions?
- Does the discharge cause a discoloration of the ocean surface?

- Is the wastewater plume adversely impacting receiving water areas used for swimming, surfing, diving, and shellfish harvesting?

This Order establishes monitoring stations RWS-001 through RWS-016 to evaluate compliance with receiving water quality standards. This Order requires measurements of temperature, salinity, pH, dissolved oxygen, Chlorophyll-a fluorescence, photosynthetically active radiation, and light transmittance to be taken throughout the water column using a CTD profiler. Continuous profiles provide a higher resolution of the conditions in the receiving water. Refer to section VIII.A. of the MRP (Attachment E) for the offshore water quality monitoring requirements.

Monitoring requirements are included in the MRP (Attachment E) to determine compliance with the receiving water limitations established in Limitations and Discharge Requirements, Receiving Water Limitations, section V.A. of this Order. Receiving water monitoring requirements included in Order R8-2012-0007 have been retained with the additional of benthic and fish and epibenthic invertebrate monitoring to evaluate impacts of the high salinity and other pollutants discharge on the benthic, fish, and epibenthic invertebrate communities.

2. Benthic Monitoring Requirements

Sediments integrate constituents that are discharged to the ocean. Most particles that come from the discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality has degraded, and beneficial uses are impaired. The benthic community is strongly affected by sediment composition and quality and water quality. Because the benthos are dependent on its surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment.

Section VIII.B. of the MRP (Attachment E) requires periodic assessment of sediment quality to evaluate potential effects of the Facility discharge and compliance with narrative water quality standards specified in the Ocean Plan. The required assessment consists of the measurement and integration of three lines of evidence: 1) physical and chemical properties of seafloor sediments, 2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and 3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments.

Benthic monitoring is necessary to answer the following question:

- Is the concentration of substances, set forth in Table 3 of the Ocean Plan for protection of marine aquatic life, in marine sediments at levels which would degrade the benthic community?
- Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- Is the sediment quality changing over time?

This Order establishes benthic monitoring requirements at ocean monitoring stations RWS-001 through RWS-016. Refer to section VIII.B of the MRP (Attachment E) for the benthic monitoring requirements.

3. Fish and Epibenthic Invertebrate Monitoring

The purpose of fish and epibenthic invertebrate monitoring is to detect spatial and temporal trends in fish and epibenthic community structure and sport fish muscle chemistry in the area of the discharge, and to assess compliance with State water quality standards and federal criteria.

Fish and epibenthic invertebrate monitoring requirements also address the four management questions for fish and epibenthic invertebrate monitoring and seafood safety monitoring in the SCCWRP's Model Monitoring Program:

- Is the health of fish populations and communities impaired?
- Are fish populations and communities changing over time?
- Is fish tissue contamination changing over time?
- Are seafood tissue concentrations below levels that will ensure public safety?

Annual fish and epibenthic community monitoring will be carried out over a grid of 6 stations upcoast of Discharge Point 001 (EFF-001); of these 6 stations, the 3 stations at the outfall depth (10 meters) will be monitored semi-annually. The monitoring area is adjacent to the coastline of Huntington Beach and Newport Beach. This Order adds annual sport fish muscle chemistry monitoring at two zones.

E. Receiving Water Regional Requirements

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large-scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision-making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all of these considerations, the Santa Ana Water Board supports regional approaches to monitoring ocean waters. The Discharger shall participate with other regulated entities, other interested parties, and the Santa Ana Water Board in development, refinement, implementation and coordination of regional monitoring and assessment programs for ocean waters in the region and discharge to those waters, so as to answer the following questions:

- Determine the status and trends of conditions in ocean waters in the region with regards to beneficial uses, e.g.,
 - i. Are fish and shellfish safe to eat?
 - ii. Is water quality safe for swimming?
 - iii. Are ecosystems healthy?

- Identify the primary stressors causing or contributing to conditions of concern;
- Identify the major sources of the stressors causing or contributing to conditions of concern; and
- Evaluate the effectiveness (i.e. environmental outcomes) of actions taken to address such stressors and sources.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section VIII. of the MRP (Attachment E), may be reallocated to provide a regional assessment of the impact of the discharge to the ocean. In that event, the Santa Ana Water Board shall notify the Discharger in writing that the requirement to perform the receiving water sampling and analytical effort defined in section VIII.B. and VIII.C. of the MRP (Attachment E) for the semi-annual winter monitoring stations are suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section VIII.B. and VIII.C. of the MRP (Attachment E) shall equal the level of resources provided to implement the regional monitoring and assessment program, unless the Santa Ana Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined and set by the Santa Ana Water Board in consultation with the Discharger.

1. Kelp Bed Canopy Monitoring Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (*Macrocystis pyrifera*) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals. Monitoring of the kelp beds is necessary to answer the following questions:

- What is the maximum areal extent of the coastal kelp bed canopies each year?
- What is the variability of the coastal kelp bed canopy over time?
- Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?
- Are new coastal kelp beds forming?

Refer to section IX.C. of the MRP (Attachment E) for the kelp bed canopy monitoring requirements.

2. Southern California Bight Monitoring

The Southern California Bight (Bight), defined as the concave bend of the shoreline extending from Point Conception to Punta Colonet in Mexico, is host to unique, biologically diverse marine ecosystems that have long been vulnerable to the impacts of

human activity. The coastal zone of the Bight hosts nearly 22 million U.S. residents that engage in a wide variety of industrial, military, and recreational activities. Approximately 5,600 miles of watersheds, half of which is highly developed, drain into the Bight. The Southern California Bight Regional Monitoring Program brings together researchers and water-quality managers to pool their resources and work together to investigate the condition of marine ecosystems both spatially and temporally and extend greater protections to the Bight's diverse habitats and natural resources.

The Discharger is required to participate in the Southern California Bight Regional Monitoring Program coordinated by SCCWRP, or any other coordinator named by the Santa Ana Water Board, pursuant to Water Code sections 13267 and 13383, and 40 CFR section 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section VIII.B. and VIII.C. of the MRP (Attachment E), winter semi-annual monitoring locations, may be reallocated to provide a regional assessment of the impact of the discharge of wastewater to the Southern California Bight. In that event, the Santa Ana Water Board shall notify the Discharger in writing that the requirement to perform the receiving water sampling and analytical effort defined in section VIII.B. and VIII.B of the MRP (Attachment E) is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under sections VII.B. and VIII.C. of the MRP (Attachment E) shall approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the Santa Ana Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined and set by the Santa Ana Water Board, in consultation with the Discharger. Refer to section IX.A. of the MRP (Attachment E).

3. Central Bight Water Quality Cooperative Program

The Central Bight Water Quality Cooperative Program is coordinated quarterly receiving water quality monitoring conducted by Orange County Sanitation District, County Sanitation Districts of Los Angeles County, the City of Los Angeles, and the City of Oxnard, through appropriate agencies for water quality monitoring. The Discharger is required to participate in this group of ocean dischargers and coordinate accordingly and monitor for the parameters as specified in section VIII.A.1. and report as instructed in section IX.B.

F. Strategic Process Studies

Discharger investigations conducted through strategic process studies is a required condition of the Order. Strategic process studies which must be conducted under the Order include the:

1. Final Effluent Characterization.

The Discharger is required to develop a work plan to study contaminants of emergent concern (CECs) that may be contained the final effluent discharged to the ocean environment and that may pose a toxic threat to marine organisms. The Discharger is advised to consider the use of monitoring technologies for CECs such as cell assay bioscreening and non-targeted analysis or other monitoring technologies recommended by the Discharger.

2. Plume Tracking Using the Regional Oceanic Modeling System-Biogeochemical Elemental Cycling (ROMS-BEC) model.

To assess the spatial extent and the temporal variability of the discharged plume the Discharger is required to seek collaboration with SCCWRP and develop an SPS that would model and provide an overall environmental assessment of the discharge using the ROMS-BEC model approach.

G. Marine Life Mitigation Plan

Water Code section 13142.5(b) requires that the best available mitigation measures feasible be used to minimize the intake and mortality of all forms of marine life. Chapter III.M.2.e of the Ocean Plan sets forth requirements to implement mitigation measures in compliance with Water Code section 13142.5(b). The Ocean Plan provisions require that the Discharger estimate the marine life mortality resulting from construction and operation of the Facility that would occur following implementation of the best available site, design, and technology measures.

Based on Santa Ana Water Board staff's estimation of marine life mortality, the mitigation required for marine life mortality impacts related to the Facility's construction and stand-alone operations is 423.0 acres before a mitigation ratio is applied to account for differences in the relative productivity of the mitigation habitat compared to the impacted habitat and 100.5 acres after the appropriate mitigation ratios are applied. (See Attachment G.3.) To fulfill the required mitigation acreage, the Discharger has chosen to complete mitigation projects pursuant to chapter III.M.2.e(3) of the Ocean Plan and has submitted a Marine Life Mitigation Plan (MLMP). The Discharger's proposed mitigation includes restoration, enhancement, and preservation projects at the Bolsa Chica Wetlands, and the creation of an artificial reef offshore of the Palos Verdes Peninsula (Palos Verdes Artificial Reef).

There are several areas within the Bolsa Chica Wetlands where restoration activities will occur: the Fieldstone Property, Cell 46 and Cell 42, and the intertidal shelf. The Fieldstone Property is approximately 12 acres of dry, barren salt pannes, with marsh and subtidal habitat. Within this property, the Discharger proposes to restore 4.5 acres of subtidal and tidal wetlands in addition to upland restoration. At several sites within Cell 46 and 42, oil pads and roads will be removed, and the areas restored to upland habitat. The individual sites for these activities are scattered throughout Cells 46 and 42 but will result in 1.2 acres of additional restoration. For each of these restoration projects to succeed, the Discharger must make

improvements to the water circulation within the Muted Tidal Basins of Bolsa Chica. The circulation improvements constitute enhancement activities. The intertidal shelf area is in the Full Tidal Basin and is approximately 23 acres. This area was intended to support cordgrass, but it has remained barren due to drainage issues. The restoration of the intertidal shelf will allow the establishment of coastal salt marsh vegetation (primarily cordgrass and some pickleweed), which provides habitat to shorebirds and estuarine species, and will provide the Discharger with 10.5 acres of mitigation credit. The Discharger also proposes to dredge the inlet at Bolsa Chica to maintain full tidal flow. The dredging is a form of preservation and will provide essential tidal connectivity between the wetlands and the Pacific Ocean to help maintain the existing wetland system and support the restoration and enhancement activities. The maintenance dredging of the ocean inlet will be done as needed to meet performance standards in the MLMP. The restoration projects (inclusive of the circulation improvements) and the maintenance dredging at the Bolsa Chica Wetlands constitute restoration of coastal wetlands and is expected to provide a total of 59.2 acres of mitigation. Lastly, the Discharger is proposing to create 41.3 acres of rocky reef habitat along the Palos Verdes Peninsula by building an artificial reef on top of a buried, non-functional natural reef.

The proposed mitigation (including all proposed preservation, enhancement, restoration, and creation activities) meets the requirements of Mitigation Option 1 in the Ocean Plan and is the best available mitigation feasible to minimize intake and mortality of all forms of marine life. (See Attachment G, Findings 43–50, and Attachment G.5.) This finding is conditioned on the Discharger's satisfaction of the requirements set forth in the MLMP Schedule in Attachment K, including any environmental review required under CEQA. (See Attachment G, Finding 5.)

Section VI.C.2.c of the Order requires the Discharger to submit a Coordination and Communication Plan, a Final Restoration Plan for the Fieldstone Property, a Final Restoration Plan for the Oil Pads and Road project, a Final Restoration Plan for the Intertidal Shelf project, a Final Creation Plan for the Palos Verdes Artificial Reef, a Final Adaptive Management Plan for the Bolsa Chica mitigation projects, and a Final Adaptive Management Plan for the Palos Verdes Artificial Reef mitigation project in accordance with Attachment K to update the MLMP to ensure adequate mitigation is provided in compliance with the Ocean Plan and Water Code section 13142.5(b). The Discharger shall implement the Final MLMP after the supplemental plans and reports required by the MLMP Schedule are approved by the Santa Ana Water Board in accordance with Attachment K.

H. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. section 1318), U.S. EPA requires major and selected minor dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are submitted annually to the State

Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The Santa Ana Water Board has considered the issuance of WDRs that will serve as an NPDES permit for the Huntington Beach Desalination Project. As a step in the WDR adoption process, Santa Ana Water Board staff has developed tentative WDRs and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Santa Ana Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the posting of Notices of Public Hearing and/or Notices of Opportunity for Public Comment on the Santa Ana Water Board website. The notices were also sent out to interested persons via email to the Santa Ana Water Board's mailing list.

The public had access to the agenda and any changes in dates and locations through the Santa Ana Water Board's website at: <http://www.waterboards.ca.gov/santaana/>

B. Written Comments

The staff determinations are tentative. Interested persons were invited to submit written comments on the tentative WDRs and on the February 12, 2021 revisions to the tentative WDRs as provided through the notification process. Comments were due either in person or by mail to the Julio Lara, Chief of the Wastewater Section of the Santa Ana Water Board at the address on the cover page of this Order or via email to RB8-PoseidonHB.comments@Waterboards.ca.gov.

C. Public Hearing

The Santa Ana Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following dates and time and at the following location:

Date: July 30 and July 31, 2020, August 7, 2020, and April 23, April 29, and
May 13, 2021
Time: 9:00 a.m.
Location: **Virtual Zoom Platform**

Interested persons were invited to attend. At the public hearings, the Santa Ana Water Board heard testimony pertinent to the discharge, WDRs, and permit.

The public can access the current agenda for changes in dates and locations on the Santa Ana Water Board's website: <http://www.waterboards.ca.gov/santaana/>.

D. Reconsideration of WDRs

Any person aggrieved by this action of the Santa Ana Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see:

<http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml>

E. Information and Copying

The ROWD, other supporting documents, and comments received are on file and may be inspected at the Santa Ana Water Board's office at any time between 9:00 a.m. and 3:00 p.m., Monday through Friday. Copying of documents may be arranged through the Santa Ana Water Board by calling (951) 782-4130.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Santa Ana Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Julio Lara at (951) 782-4901 or Julio.Lara@waterboards.ca.gov.

**APRIL 28, 2021 DRAFT TO IMPLEMENT
ALTERNATIVE # 2 TO DISCHARGE AND INTAKE
PROHIBITIONS**

Attachment K – Marine Life Mitigation Plan Schedule

As discussed in Finding 5 in the Water Code Determination (Attachment G to the Order), the Santa Ana Water Board conditionally finds that the Discharger's proposed mitigation is the best available mitigation feasible. Poseidon Resources (Surfside) LLC (Discharger) submitted a Marine Life Mitigation Plan (MLMP) (Appendix TT4) and supplemental documents (Appendices IIIIII, PPPPPP-2, HHHHHH, and WWWWWW-2) modifying the MLMP. The MLMP (inclusive of the supplemental appendices) outlines an approach for providing the mitigation required to replace habitat lost due to the construction and operation of the proposed Huntington Beach Desalination Plant (Facility).

The Discharger's proposed mitigation includes restoration, enhancement, and preservation projects at the Bolsa Chica Wetlands, and the creation of an artificial reef offshore of the Palos Verdes Peninsula (Palos Verdes Artificial Reef). The mitigation at the Bolsa Chica Wetlands consists of approximately 4.5 acres of subtidal/intertidal habitat on the Fieldstone Property located at the northwest boundary of Bolsa Chica; approximately 1.2 acres of subtidal/intertidal Oil Pad/Road property; approximately 10.5 acres for the restoration of the intertidal shelf; approximately 15 acres for the enhancement of water circulation in the Muted Tidal Basin; and 28 acres for the maintenance dredging of the Bolsa Chica ocean inlet to ensure that the Full Tidal Basin continues to function properly and to support the restoration projects (see Attachment G.5 for a detailed discussion and analysis of the acres of mitigation). The Discharger's proposed Palos Verdes Artificial Reef will provide approximately 41.3 acres of rocky reef habitat within a 133-acre lease (PRC-9448.9) granted by the California State Lands Commission to the Southern California Marine Institute (SCMI).¹

The Discharger's proposed restoration, enhancement, and creation projects are based on currently available data and information. Santa Ana Water Board staff's analysis has indicated that further studies and data collection will be required to refine the proposed restoration, enhancement, and creation projects. The proposed projects are conceptual at this time and sufficient details are not available to complete a meaningful environmental analysis under the California Environmental Quality Act (CEQA). The Marine Life Mitigation Plan Schedule below requires the Discharger to perform

¹ The Southern California Marine Institute is the current lease holder and is responsible for monitoring the existing reef.

additional studies, complete supplemental reports, and coordinate with the appropriate agencies. The Discharger shall adhere to the requirements outlined below. The Santa Ana Water Board expects that the additional submittals—subject to any environmental review required by CEQA and any changes to the proposed projects arising therefrom—will confirm its conditional finding that the mitigation at the Bolsa Chica Wetlands and the creation of an artificial reef offshore of the Palos Verdes Peninsula are the best available mitigation measures feasible for the proposed Facility.

As explained in Attachment G.5, the restoration activities outlined in this Marine Life Mitigation Plan Schedule and the mitigation activities proposed in the Discharger's MLMP (inclusive of the supplemental appendices) are necessary for the Santa Ana Water Board to make a determination that the proposed mitigation measures comply with the Ocean Plan. All of the mitigation activities combined are expected to result in sufficient mitigation acres to offset the marine life impacts and mortality that may result from the construction and 50-year operation of the Facility. The Santa Ana Water Board has determined that specific details regarding the restoration at the Fieldstone Property, the Oil Pad/Road properties, and the Intertidal Shelf, and the Muted Tidal Basins circulation enhancement activities can be developed with the Discharger and interested parties, including the California State Lands Commission and the Bolsa Chica Wetlands Steering Committee (Steering Committee) prior to the construction of the Facility. Similarly, the details regarding the proposed Palos Verdes Artificial Reef can be developed with the Discharger and interested parties, including the California State Lands Commission, the Los Angeles Regional Water Quality Control Board, State Water Resources Control Board, California Coastal Commission, California Department of Fish and Wildlife, and NOAA. These specific details will take time to determine and require coordination with several agencies interested in the mitigation projects. Therefore, putting these conditions in the permit will allow the Discharger time to develop a final MLMP and specify the project details such that meaningful environmental review under CEQA can be conducted. The findings and requirements for mitigation in this Order and the accompanying section 13142.5(b) determination (Attachment G to the Order) do not prevent or otherwise limit other agencies from requiring additional mitigation for the proposed Facility, nor do they preclude changes to the proposed projects through the CEQA process.

Furthermore, it is important to note that the Bolsa Chica Lowlands Restoration Project (BCLRP) is managed under the oversight of the interagency partners as specified in the 1996 Interagency Agreement (which established the Steering Committee) for the benefit of multiple ecological resources, whereas the Discharger's mitigation will need to meet specific regulatory requirements of the Santa Ana Water Board and California Coastal Commission. To be workable/feasible, the Discharger's mitigation must be compatible with the management goals, policies, and decisions of the California State Lands Commission with input from the Steering Committee. Accordingly, the Discharger must coordinate with the California State Lands Commission with input from the Steering Committee as the details of the final MLMP are further developed. The Discharger must address any conflicts that are identified between the needs of the California State Lands

Commission with input from the Steering Committee for present and future operations, as well as system adjustments necessary in light of projected sea level rise (SLR). These issues must be addressed in the final MLMP in a manner that provides clear assurance that the compensatory mitigation requirements of the Discharger's mitigation will be met.

Table K-1 below establishes the schedule under which the Discharger must submit the following plans to the Santa Ana Water Board for review and approval:

- 1) Coordination and Communication Plan
- 2) Final Restoration Plan for the Fieldstone Property (including Enhancement Plan for the Muted Tidal Basins)
- 3) Final Oil Pads/Road Restoration Plan (including Enhancement Plan for the Muted Tidal Basins)
- 4) Final Restoration Plan for the Intertidal Shelf Cordgrass Project
- 5) Final Palos Verdes Artificial Reef Creation Plan
- 6) Final Adaptive Management Plan for the Bolsa Chica Mitigation Projects and the Palos Verdes Artificial Reef

The Discharger must submit the required plans to the Santa Ana Water Board for review and approval by the stated due date. The approved plans will supplement the Discharger's preliminary MLMP and the documents will constitute the final MLMP. If the submitted plans do not obtain final approval, the Santa Ana Water Board may reopen the section 13142.5(b) determination and require the Discharger to submit a new MLMP to satisfy the mitigation requirements of the Ocean Plan, chapter III.M. The performance standards that the Discharger is required to meet to satisfy the requirements of the Ocean Plan are specified in Table K-2 at the end of this document. These performance standards will ensure that the mitigation performed compensates for the loss of marine life due to the construction and operation of the Facility for the operational lifetime of the Facility.

Definitions

The following definitions apply to Table K-1:

"30% design plan" refers to a design plan completed to 30% that includes, but is not limited to, the specific tasks listed by project in Table K-1 for 30% design plans. The 30% design plans must be completed in accordance with the schedule in Table K-1 or sooner, and to the point where the cost estimates for all components of each mitigation project that include planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility are within a 50% confidence level.

"60% design plan" refers to a design plan completed to 60% that includes, but is not limited to, the specific tasks listed by project in Table K-1 for 60% design plans. The 60% design plan must be completed in accordance with

the schedule in Table K-1 or sooner, and to a point where the cost estimates for all components of each mitigation project that include planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility are within a 75% confidence level.

“Final MLMP” refers to the Discharger’s preliminary MLMP (Appendices TT4, HHHHHH, IIIII, PPPPPP-2, and WWWWWW-2) ~~as supplemented by~~ and the supplemental plans required in Table K-1. The constituent documents must be approved by the Santa Ana Water Board to be included as a component of the final MLMP.

“Financial assurance” refers to the financial assurance required by the State Lands Commission, and does not include the financial assurance that may be required by the Santa Ana Water Board as a condition of the removal of the discharge and intake prohibitions in the Tentative Order.

“Performance standards” refers to the specific measures set forth in Table K-2 that the Santa Ana Water Board has determined that the Discharger’s proposed mitigation project must achieve to comply with the Ocean Plan’s requirements for the best available mitigation feasible. Approval of the plans submitted under the MLMP schedule are contingent upon their ability to meet the established performance standards. The performance standards are final and are subject to change only in the event that the Santa Ana Water Board reopens the conditional determination of project compliance with the mitigation requirement of Water Code section 13142.5(b).

“Success criteria” refers to metrics or tools that will be developed in accordance with the plans required under the MLMP Schedule. The success criteria will be used to evaluate whether the Discharger’s proposed mitigation is meeting performance standards.

“Subtidal” refers to habitats or areas that are permanently submerged. Specifically, these areas are submerged by circulating marine water and are therefore subject to tidal influence, even though the tidal influence may be muted and not fully governed by natural tidal cycles.

“Supplemental plans” refers to all plans required under Table K-1.

“Intertidal” refers to habitats or areas that are periodically submerged. Specifically, these areas are intermittently submerged by marine waters subject to tidal influence, including muted tidal influence. The submergence, however, is variable depending on tidal action and habitat management actions at the site undertaken by the Bolsa

Chica Steering Committee and the California Department of Fish and Wildlife. Intertidal does not include seasonal ponding or unanticipated flooding by freshwater in areas where circulation of marine waters is not a substantial portion of the hydrology.

Table K-1. Marine Life Mitigation Plan Schedule

TASK	DUE DATE
<p>1) The Discharger shall submit a Coordination and Communication Plan that includes, at a minimum, the following:</p> <p>A. Bolsa Chica Mitigation Projects:</p> <ul style="list-style-type: none"> i. A summary of the methods and milestones (and any necessary interim milestones) to be used to coordinate with the California State Lands Commission and the Bolsa Chica Wetlands Steering Committee (Steering Committee) regarding the MLMP design, operations, performance standards, success criteria, and requirements under any permits the Discharger will need to obtain to complete the mitigation projects at the Bolsa Chica Wetlands. This summary shall include at least two scheduled meetings with representatives from the California State Lands Commission, the Steering Committee, and the Santa Ana Water Board. ii. A process for California State Lands Commission staff with input from the Steering Committee to submit comments on any drafts of the plans required below for the Bolsa Chica Wetlands. iii. An explicit statement that the Discharger shall submit the plans required below for the Bolsa Chica Wetlands for Santa Ana Water Board review and approval only after the California State Lands Commission staff and Steering Committee has had a reasonable period of time to review the plans required below for the Bolsa Chica Wetlands and provide any recommended changes before the Santa Ana Water Board considers the plans. iv. A plan for managing potential conflicts between the proposed circulation improvements and the California State Lands Commission with input from the Steering Committee's operation of the Muted Tidal Basins (MTBs). For example, there may be a scenario where the California State Lands Commission with input from the Steering Committee would like to operate the MTBs for multi-species benefit. Specifically, during Snowy 	<p>All Documents discussed in Task 1 shall be submitted no later than 6 months after approval of a Coastal Development Permit (CDP) for the Facility from the California Coastal Commission</p>

TASK	DUE DATE
<p>Plover nesting season, the MTB flats may be completely drained to provide nesting habitat. This management decision could have impacts on the Discharger's compliance with the final MLMP and success criteria that may be developed for the MTB enhancement activities.</p> <ul style="list-style-type: none"> v. A plan for documenting the California State Lands Commission staff and Steering Committee's comments and concerns and how these were addressed by the Discharger. vi. A letter of intent from the California State Lands Commission or other agreement between the California State Lands Commission and the Discharger, which demonstrates a willingness by the California State Lands Commission to accept the Discharger's mitigation proposal for the Bolsa Chica site. vii. A plan and schedule for submittal of an Application for Use of State Lands and other required application materials to the State Lands Commission to obtain a lease and/or other mechanism(s) (which may include a Land Use Agreement or other agreement(s)) to be executed between the California State Lands Commission and the Discharger providing the Discharger with land use rights to carry out the mitigation at the Bolsa Chica Wetlands and requiring the Discharger to provide financial assurances to implement the restoration and enhancement projects at the Bolsa Chica Wetlands in the final MLMP for the operational lifetime of the Facility. The schedule must also include a timeline for completing any environmental review required under CEQA. viii. A plan and schedule for the Discharger to assume responsibility for performing the maintenance dredging from the State Lands Commission and to provide financial assurances to perform the maintenance dredging as required by the State Lands Commission and Steering Committee for the operational life of the Facility. <p>B. Palos Verdes Artificial Reef</p> <ul style="list-style-type: none"> i. A summary of the methods and milestones (and any necessary interim milestones) to be used to coordinate with staff from the California State Lands Commission, NOAA Restoration Center/Montrose Settlements Restoration Center, California Coastal Commission, Santa Ana Water Board, California Department of Fish and Wildlife (collectively, agency staff), and United States Army Corps of Engineers regarding the 	

TASK	DUE DATE
<p>Discharger's proposed creation of the Palos Verdes Artificial Reef design, operations, performance standards, success criteria, and commitments under the permits. This summary shall include at least two scheduled meetings with the agency staff.</p> <ul style="list-style-type: none"> ii. A process for agency staff to submit comments on the plans required below for the proposed Palos Verdes Artificial Reef. iii. An explicit statement that the Discharger shall submit the plans required below for the Palos Verdes Artificial Reef for Santa Ana Water Board review and approval only after agency staff has reviewed and provided any recommended changes. iv. A plan for managing potential conflicts between the Discharger and agency staff on the habitat design, performance standards, and monitoring that will be developed and provided to the Santa Ana Water Board for review and approval. v. A plan for documenting agency staff comments and concerns including how they were addressed by the Discharger. vi. A letter of intent from SCMI and the California State Lands Commission or other agreement between SCMI and the California State Lands Commission and the Discharger, which demonstrates a willingness to accept the Discharger's mitigation proposal for the Palos Verdes Artificial Reef site. vii. A plan and schedule for submittal of an Application for a Use of State Lands and other required application materials to the State Lands Commission to obtain a lease, and/or other mechanism(s) (which may include a Land Use Agreement or other agreement(s)) to be executed between SCMI, the California State Lands Commission, and the Discharger providing the Discharger with land use rights to carry out the Palos Verdes Artificial Reef project and requiring the Discharger to provide financial assurances to implement the Palos Verdes Artificial Reef project in the final MLMP for the operational life of the Facility. The schedule must also include a timeline for completing any environmental review required under CEQA. viii. A plan and schedule for submittal of an application for a Coastal Development Permit for the Palos Verdes Artificial Reef from the California Coastal Commission. 	

TASK	DUE DATE
Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.	
<p>2) The Discharger shall submit a Restoration Plan for the Fieldstone Property to provide at least 4.5 acres of intertidal and subtidal area suitable for fish habitat. At a minimum, the plan must include the following:</p> <p>A. A detailed 30% design <u>conceptual</u> plan and map that show:</p> <ul style="list-style-type: none"> i. The existing culverts that the Discharger plans to unblock or enlarge that connect the Fieldstone property to the western MTB. ii. Planned berm breaches from the western MTB to the Fieldstone property. iii. Planned berm breaches from the Fieldstone property to the central MTB. iv. Planned grading changes needed to ensure restoration success. v. Existing and planned buffers around restored area(s). vi. <u>A plan for management of water levels within the proposed restoration sites under the new operational water levels that will occur within the MTBs as part of the enhancement/restoration.</u> vi. <u>vii. A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> vii. <u>viii. Hydrologic analyses showing muted tidal/water circulation under existing conditions and as expected upon completion of the proposed modifications that must, at a minimum, include the following:</u> <ul style="list-style-type: none"> 1. The expected total area of intertidal and subtidal areas adequate to provide fish habitat. 2. The expected timing and volume of tidal circulation adequate to support fish habitat. 3. An evaluation of potential conflicts between the proposed restoration and the California State Lands Commission with input from the Steering Committee operations of the MTBs and a plan for managing these conflicts. i. A report of soil conditions, following California State Lands Commission, Steering Committee, and Santa Ana Water Board staff approval of a sampling plan, based 	<p>All submittals specified under task 2 shall be submitted in accordance with the schedule detailed below:</p> <p><i>Interim deadlines</i></p> <p>1. The 30% Design <u>30% Conceptual Plan</u> must be submitted no later than 9 months from approval of a CDP for the Facility by the California Coastal Commission</p> <p>2. The 60% Design Plan and Excavated Material Plan must be submitted no later than 18 months from approval of a CDP for the Facility by the California Coastal Commission</p>

TASK	DUE DATE
<p>on an investigation of soils in the restoration areas that includes, at a minimum, the following:</p> <ol style="list-style-type: none"> 1. The results of the soil investigation. 2. A map of the investigation area that identifies areas of contaminated soil, if any. 3. If contaminated soils are identified, a plan of remediation that identifies the extent of contamination and proposed methods of contaminant removal or treatment that will allow for successful restoration. <p>B. A 60% design plan that describes how tidal exchange within the MTBs will be accomplished.</p> <ol style="list-style-type: none"> i. An analysis of any new channels or existing channels requiring modification that are necessary to ensure the success of the project and inclusion of a map that details possible locations for these new/modified channels and calculations for sizing (sectional area and depth) of the required channels. ii. Identification of how inundation frequency desired within restored habitats is to be achieved, including MTB operating assumptions and any control structures necessary to achieve hydrologic objectives. (Discharger's Appendix. TT4, page 27) iii. Identification of the habitats within all areas to be modified through the above restoration actions, along with proposed measures to be conducted during construction to avoid and minimize impacts to sensitive habitats and sensitive species. <ol style="list-style-type: none"> 1. A description of the habitats that will be restored within each subarea of Fieldstone as well as a breakdown of the estimated acres of restoration in each subarea. iv. <u>A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> v. <u>AThe 60% design plan must include a grading and excavated materials plan that includes the following:</u> <ol style="list-style-type: none"> 1. An estimated schedule. 2. The estimated amount of soil to be removed. 	<ol style="list-style-type: none"> 3. The Final 90% Design Plan and habitat assessment must be submitted no later than 6 months from the issuance or waiver of a Section 401 Water Quality Certification (401 Certification) for the Fieldstone Property Restoration or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Fieldstone Property Restoration 4. Any modified success criteria for the Fieldstone Property Restoration must be submitted to the Santa Ana Water

TASK	DUE DATE
<p>3. <u>Identification of soil testing protocols for potential suitable reuse or disposal (off- or on-site).</u></p> <p>2-4. A plan for disposal of the saline soils that may be removed from the site.</p> <p>3-5. Confirmation from California Department of Fish and Wildlife (CDFW) and California State Lands Commission that suitable material may remain on site (if necessary or desirable).</p> <p>4-6. The location(s) and methods for reuse of the excavated materials.</p> <p>5-7. Discussion of how such material will contribute to the habitat functions within the Bolsa Chica wetlands in a manner that would fully offset any potential impacts of reuse (e.g., raising depressed ponding basin areas to suitable elevations to support vegetated marsh, should the California State Lands Commission, with input from the Steering Committee, identify this as a beneficial use of available material to curb SLR impacts).</p> <p>6-8. Confirmation that material that is deemed either not suitable for reuse, or not desired to remain on-site will be disposed of off-site.</p> <p>7-9. Any future uses for the excavated soils, as well as its estimated volume.</p> <p>8-10. Period of time that the material may be stored onsite based on authorization from CDFW, California State Lands Commission staff, and the Steering Committee and designation of a storage location(s) that does not adversely affect wetland or sensitive species functions.</p> <p>11. Best management practices that the Discharger will implement to ensure that any stored materials stay onsite and do not erode, drift or blow into other adjacent areas.</p> <p>vi. —</p> <p>vi. A habitat assessment that investigates the effects of the proposed activities on sensitive species, including breeding, nesting, and foraging activities of Belding's savannah sparrow, California least tern, Western snowy plover, and other avian species known to use the area.</p> <p>vii. —</p> <p>vii. Proposed hydrologic monitoring measures adequate to identify the timing and range of tidal circulation and inundation within the proposed restoration areas and</p>	<p>Board no later than 6 months from the issuance or waiver of a 401 Certification for the Fieldstone Property Restoration or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Fieldstone Property Restoration</p> <p><i>Interim Deadlines for Water Circulation Enhancement Plan:</i></p> <p>1. The <u>30% Design Conceptual Plan</u> must be submitted no later than 9 months from approval of a CDP for the Facility from</p>

TASK	DUE DATE
<p>proposed biological monitoring measures adequate to identify the number and species of fish using the restored areas.</p> <p>viii. <u>A description of how tidal flushing form the restoration site will occur.</u></p> <p>ix. Development and implementation of any additional success criteria, based on new studies or new information, to measure the success of the proposed restoration areas that incorporate any recommendations made by the California State Lands Commission staff with input from the Steering Committee.</p> <p>1. Success criteria must rely on both reference sites within, and outside of, Bolsa Chica. The reference sites from elsewhere in the Southern California Bight, shall be representative of the habits the Discharger is establishing within Bolsa Chica and shall be submitted the Santa Ana Water Board Executive Officer for Approval.</p> <p>C. <u>A final 90% design plan incorporating comments from the Santa Ana Water Board's Executive Officer and the California State Lands Commission with input from the Steering Committee. The plan must include, at a minimum, the following:</u></p> <p>i. <u>Plans, sections, profiles, and construction notes.</u></p> <p>ii. <u>Stormwater management and best management practices</u></p> <p>iii. <u>An estimated schedule of construction.</u></p> <p>iv. <u>The estimated soil volumetric balance.</u></p> <p>v. <u>A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u></p> <p>Unless the California State Lands Commission with input from the Steering Committee indicates that improvements to Water Circulation are not necessary for success of the restoration project, an <u>Enhancement Plan to Improve Water Circulation for the Muted Tidal Basins</u> shall be submitted that, at a minimum, includes the following:</p> <p>D. A detailed <u>30% design conceptual plan</u> and map that show:</p> <p>i. The existing channel network, culverts and weirs including dimensions and channel floor elevations relative to surrounding ground elevations.</p>	<p>the California Coastal Commission</p> <p>2. The 60% Design Plan must be submitted no later than 18 months from approval of a CDP for the Facility by the California Coastal Commission</p> <p>3. The final 90% Design Plan must be submitted no later than 6 months from the issuance or waiver of a 401 Certification for the Water Circulation Enhancement or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Water Circulation Enhancement</p>

TASK	DUE DATE
<p>ii. Proposed channel additions and improvements of existing channels, including dimensions, that will provide for effective drainage of low-lying terrain within the western, central, and eastern MTBs. Plans for the channel additions and improvements shall also provide for an improved hydraulic gradient so that flows move, unimpaired, from the western MTB into the central MTB and then into the eastern MTB before being discharged to Freeman Creek.</p> <p>iii. Existing, as well as any proposed new or modified, culverts, weirs, and gates of suitable size and nature to allow for efficient management of circulation drainage within and between basins to allow for transfer of water between basins and down to Freeman Creek.</p> <p>—A plan for integration of on-site soil reuse that balances the channel volume removals with placement in the MTBs (or elsewhere in Bolsa Chica) where elevated mounds or infills of low-lying terrain would enhance habitat conditions (see additional discussion under “60% design plan,” below)</p> <p>iv. iv.—</p> <p>v.iv. iv. Hydrologic analysis showing tidal circulation under existing conditions and as expected upon completion of the proposed modifications described in the detailed plan above. The analysis must, at a minimum, include the following:</p> <ol style="list-style-type: none"> 1. The expected total area of fish-accessible intertidal habitat that may be available under anticipated maximum, normal recurrent, and minimum operational scenarios as determined and implemented by the California State Lands Commission with input from the Steering Committee. (Intertidal inundation and drainage will continue to be conducted at the discretion of the California State Lands Commission with input from the Steering Committee to meet multiple ecological objectives. As such, the intertidal fish habitat estimate is intended to be a best estimate derived through coordination with the California State Lands Commission with input from the Steering Committee and is not a performance measure.) 2. The expected total area of enhanced tidal channel system anticipated to be operated as a subtidal channel condition by the California State Lands Commission with input from the Steering Committee. (It is generally anticipated 	<p>4. Any modified or additional success criteria must be submitted to the Santa Ana Water Board no later than 6 months from the issuance or waiver of a 401 Certification for the Water Circulation Enhancement or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Water Circulation Enhancement</p>

TASK	DUE DATE
<p>that the main MTBs channel network will be maintained as an inundated subtidal environment by the California State Lands Commission with input from the Steering Committee. This area is expected to be predictably enhanced for fish by the circulation improvements and would provide an expected doubling of fish richness in the muted tidal basins.)</p> <p>3. Documentation, from the hydrologic analysis, of the maximum achievable sustained volume of circulated water through the MTBs.</p> <p>vi. <u>A cost estimate for all components of the project, including, planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u></p> <p>vii. Development and implementation of any additional success criteria, based on new studies or new information, to measure the success of the proposed restoration areas that incorporate any recommendations made by the California State Lands Commission staff with input from the Steering Committee.</p> <p>viii. Success criteria must rely on both reference sites within, and outside of, Bolsa Chica. The reference sites from elsewhere in the Southern California Bight shall be representative of the habits the Discharger is establishing within Bolsa Chica and shall be submitted the Santa Ana Water Board Executive Officer for Approval.</p> <p>ix. The <u>30% design</u>conceptual plan and map must be reviewed and approved by the California State Lands Commission with input from the Steering Committee and the Santa Ana Water Board's Executive Officer.</p> <p>E. <u>The 60% design plan</u> that includes the following:</p> <p>i. Plan and typical section views of the circulation channel systems to be constructed.</p> <p>ii. Plan views and stationing of channels that include channel invert elevation details presented on basin topographic plans adequate to document surrounding ground elevations accurate to within 0.5 feet or better as may be required to depict suitable drainage information.</p> <p>iii. Plan locations and details for water control structures including culverts, weirs, and gates suitable to control water levels individually within the three basins and not disrupt required roadway infrastructure or oil infrastructure.</p>	

TASK	DUE DATE
<ul style="list-style-type: none"> iv. Identification of the habitats within all areas to be modified through the circulation restoration actions, along with proposed measures during construction to avoid or minimize impacts to sensitive habitats or sensitive species. v. Design drawings identifying wetland habitat restoration opportunities. Specifically, the plan must identify opportunities for expanded planting areas or for drainage restoration (to facilitate marsh recovery in areas previously lost to inundation by uncontrollable ponding). vi. Proposed hydrologic monitoring measures adequate to identify the timing and range of tidal circulation and inundation within the proposed restoration areas and proposed biological monitoring measures adequate to identify the number and species of fish using the restored areas. vii. Identification of staging and work limits, operational areas, and preliminary schedule of work including avian nesting season constraints. viii. A plan for integration of on-site soil reuse that balances the channel volume removals with placement in the MTBs (or elsewhere in Bolsa Chica) where elevated mounds or infills of low-lying terrain would enhance habitat conditions. The plan shall include the following: <ul style="list-style-type: none"> 1. A description of how the material will be reused to contribute to the habitat functions within Bolsa Chica (e.g., raising depressed ponding basin areas to suitable elevations to support vegetated marsh, should the California State Lands Commission with input from the Steering Committee identify this a beneficial use of available material to curb SLR impacts). 2. A cut/fill volumetric estimate of the work required. 3. The reuse location for any material that remains onsite. 4. Identification of soil testing protocols for potential suitable reuse or disposal (off- or on-site). 5. Any future uses for the excavated materials, as well as its estimated volume. 6. Period of time that the material may be stored on site and designation of a storage location(s) that does not adversely affect wetland or sensitive species functions. 	

TASK	DUE DATE
<p>7. Best management practices that the Discharger will implement to ensure that any stored materials stay onsite and do not erode, drift, or blow into other adjacent areas.</p> <p>ix. A plan for haul away and legal offsite disposal of any encountered rubbish or soil unsuitable for reuse.</p> <p>x. Confirmation that material that is deemed either “not suitable for reuse,” or “not desired to remain on-site” will be disposed of off-site.</p> <p>x-xi. <u>A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u></p> <p>F. A final 90% developed design plan incorporating comments from the Santa Ana Water Board’s Executive Officer and the California State Lands Commission with input from the Steering Committee. The plan must include, at a minimum, the following:</p> <ul style="list-style-type: none"> i. Plans, sections, profiles, and construction notes. ii. Stormwater management and best management practices iii. An estimated schedule of construction. iv. The estimated soil volumetric balance. v. A restoration <u>A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> <p>An implementation plan that includes timelines, schedules, and completion deadlines for the Fieldstone Restoration activities (including the enhancement of the Muted Tidal Basins via improved water circulation).</p> <p>Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.</p>	
<p>3) The Discharger must submit an Oil Pads and Road Restoration Plan that will restore a minimum of 1.2 acres of intertidal or subtidal habitat. At a minimum, the plan must include the following:</p>	<p>All submittals specified under task 3 shall be submitted</p>

TASK	DUE DATE
<p>A. A <u>30% designConceptual Plan</u> that provides the following:</p> <ul style="list-style-type: none"> i. A list and map of all roads, berms, and oil pads to be removed. ii. Methods of pad removal (including testing and disposal or beneficial reuse of the excavated materials). iii. Timeline for project completion. iv. Expected results (i.e. type and area of each habitat that will replace oil operation-related structures). v. Estimates of the elevation that the pads/roads will be lowered to within each cell. vi. Determination as to whether other infrastructure will need to be moved/relocated so that habitat restoration can occur. vi.vii. The Appendix TT4 states that site B2, “involves grading to create open water coastal saltmarsh” <ul style="list-style-type: none"> 1. Provide estimates of how the grading will be accomplished including how much material will be removed, the methods that will be used to remove the materials, and information on testing and disposal options including potential options for beneficial reuse. 2. Provide types and area of each expected habitat to be restored at the site after grading and any necessary drainage improvements are completed. viii. <u>A cost estimate for all components of the project, including, planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> ix. Development and implementation of any additional success criteria, based on new studies or new information, to measure the success of the proposed restoration areas that incorporate any recommendations made by the California State Lands Commission staff with input from the Steering Committee. <ul style="list-style-type: none"> 1. Success criteria must rely on both reference sites within, and outside of, Bolsa Chica. The reference sites from elsewhere in the Southern California Bight shall be representative of the habits the Discharger is establishing within Bolsa Chica and shall be submitted the Santa Ana Water Board Executive Officer for Approval. 	<p>in accordance with the schedule listed below</p> <p><i>Interim deadlines</i></p> <p>1. The <u>30% DesignConceptual Plan</u> must be submitted no later than 9 months from approval of a CDP for the Facility from the California Coastal Commission</p> <p>2. The 60% <u>Design Plan-Grading Plan and Excavated Material Plan</u> must be submitted no later than 18 months after approval of a CDP for the Facility by the California Coastal Commission</p> <p>3. The final 90% Design Plan must be submitted no later than 6 months from</p>

TASK	DUE DATE
<ul style="list-style-type: none"> x. For each proposed site include the number of acres for each habitat type (e.g. site B1, B2, etc.) that are planned for restoration or enhancement. xi. For improvements to the circulation of Site B2 in the eastern MTB, provide: <ul style="list-style-type: none"> 1. An explanation of how the improved water circulation (see discussion regarding water circulation improvements in Task 2) in the Eastern MTB will be sufficient for the proposed restoration at Site B2, or a detailed plan of any circulation improvements that will be necessary. 2. Information (e.g. success criteria, monitoring-driven trigger levels, etc.) that will be used to inform long-term maintenance plans. 3. A report of soil conditions based on an investigation of soils in the restoration areas that includes, at a minimum, the following: <ul style="list-style-type: none"> a. The results of the soil investigation. b. A map of the investigation area that identifies areas of contaminated soil, if any. c. If contaminated soils are identified, a plan of remediation that identifies the extent of contamination and proposed methods of contaminant removal or treatment that will allow for successful restoration. d. A plan for disposal of the saline soils that may be removed from the site. e. Confirmation from California Department of Fish and Wildlife (CDFW) and California State Lands Commission that suitable material may remain on site (if necessary or desirable). f. Identification of the habitats within all areas to be modified through the above restoration actions, along with proposed measures to be conducted during construction to avoid and minimize impacts to sensitive habitat and sensitive species. g. A habitat assessment that investigates the effects of the proposed activities on sensitive species, including breeding, nesting, and foraging activities of Belding's savannah sparrow, California least tern, Western snowy plover, and other avian species known to use the area. xii. Proposed hydrologic monitoring measures adequate to identify the timing and range of tidal circulation and inundation within the proposed restoration areas and proposed 	<p>the issuance or waiver of a 401 Certification for the Oil Pads and Road Restoration or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Oil Pads and Road Restoration</p> <p>4. Any modified or additional success criteria must be submitted to the Santa Ana Water Board no later than 6 months from the issuance or waiver of a 401 Certification for the Oil Pads and Road Restoration or, if a 401 Certification is not required, 6 months from a determination by the</p>

TASK	DUE DATE
<p>biological monitoring measures adequate to identify the number and species of fish using the restored areas.</p> <p>B. estimated amount of soil to be removed or used as fill and identified soil testing protocols for potential suitable reuse or disposal (off- or on-site). [See additional requirements below regarding excavated materials.]</p> <p>C.B. <u>A 60% complete design plan for the excavated material that includes:</u></p> <ul style="list-style-type: none"> <u>i. Estimated amount of soil to be removed or used as fill.</u> <u>ii. Identification of soil testing protocols for potential suitable reuse or disposal (off- or on-site).</u> <u>i.iii. Authorization from California Department of Fish and Wildlife (CDFW) and California State Lands Commission that suitable material may remain on site (if necessary or desirable).</u> <u>ii.iv. The location(s) and methods for reuse of the excavated materials.</u> <u>iii.v. Discussion of how such material will contribute to the habitat functions within the Bolsa Chica wetlands in a manner that would fully offset any potential impacts of reuse (e.g., raising depressed ponding basin areas to suitable elevations to support vegetated marsh, should the California State Lands Commission with input from the Steering Committee identify this as a beneficial use of available material to curb SLR impacts).</u> <u>iv.vi. Confirmation that material that is deemed either not suitable for reuse, or not desired to remain on-site will be disposed of off-site.</u> <u>v.vii. Any future uses for the excavated soils, as well as its estimated volume.</u> <u>vi.viii. Period of time that the material may be stored on site based on CDFW and the California State Lands Commission with input from the Steering Committee input and designation of a storage location(s) that does not adversely affect wetland or sensitive species functions.</u> <u>ix. Best management practices that the Discharger will implement to ensure that any stored materials stay onsite and do not erode, drift or blow into other adjacent areas.</u> <u>vii.x. A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> 	<p>Santa Ana Water Board that a 401 Certification is not required for the Oil Pads and Road Restoration</p>

TASK	DUE DATE
<p>viii-xi. A description of how tidal flushing from the restoration sites will occur (see Task 2, above).</p> <p>D.C. A final 90% developed plan incorporating comments from the Santa Ana Water Board's Executive Officer and the California State Lands Commission with input from the Steering Committee. The plan must include, at a minimum, the following:</p> <ul style="list-style-type: none"> i. Plans, sections, profiles, and construction notes. ii. Stormwater management and best management practices iii. An estimated schedule of construction. iv. The estimated soil volumetric balance. v. <u>A restoration-cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> <p><i>Consistent with the requirements in Task 2, An Enhancement Plan to Improve Water Circulation for the Muted Tidal Basins in order to ensure successful implementation of Task 3.</i></p> <p>An implementation plan that includes timelines, schedules and completion deadlines for the Oil Pads/Roads Restoration activities (including the enhancement of the Muted Tidal Basins via improved water circulation).</p> <p>Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.</p>	
<p>4) The Discharger shall submit an Intertidal Shelf Restoration Plan that will restore a minimum of 23 acres of coastal salt marsh. At a minimum, the plan must include the following:</p> <p>A. A 30% design <u>Conceptual Plan</u> that provides the following:</p> <ul style="list-style-type: none"> i. Overall site plan and determination of area subject to restoration of coastal salt marsh including location of any channels within the salt marsh. ii. Proposed elevations for the restoration site including but not limited to: <ul style="list-style-type: none"> 1. Determination of elevation ranges of coastal salt marsh habitat currently present within the Bolsa Chica Full Tidal Basin 	<p>All submittals specified under task 4 shall be submitted in accordance with the schedule listed below</p>

TASK	DUE DATE
<ul style="list-style-type: none"> 2. Documentation of expected inundation frequencies for the coastal salt marsh habitat types to be restored under the performance standards determined for the inlet maintenance activities. 3. Delineation of buffer zones surrounding the proposed restoration area iii. Expected results (i.e. type and acreage of each habitat (e.g. low, mid, and high marsh) that will be restored) including but not limited to the following: <ul style="list-style-type: none"> 1. Anticipated areas of cordgrass habit. 2. Anticipated areas of pickleweed habitat. 3. Anticipated habitat type in remaining acres of restoration iv. Determination as to whether any temporary or permanent wave protection measures will be necessary to assure vegetation survival. The determination must include any necessary modeling of the hydrodynamics, wave run up, or wind conditions in the Full Tidal Basin that may affect inundation, sedimentation, or erosion of the intertidal shelf. iv-v. Proposed construction methodology <ul style="list-style-type: none"> 1. Provide a description of potential sources of sediment, an estimate of the type and volume of sediment that will be required, the methods that will be used to place the materials, and information on sediment quality testing (chemistry, including potential contaminants and salinity, particle size, moisture content, and organic matter content) prior to placement. 2. Provide information on the methods to retain the material within the restoration site during construction. 3. Provide estimates on the timing and duration of the construction. 4. Provide information on the sources of plant material and planting methods. 5. Indicate if any sensitive habitats are present and how construction will be accomplished to avoid impacts to those areas where feasible. v-vi. <u>A cost estimate for all components of the project, including, planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> vi-vii. Development and implementation of any additional success criteria, based on new studies or new information, including any recommendations made by the California 	<p><i>Interim deadlines</i></p> <ul style="list-style-type: none"> 1. The <u>30% Design Conceptual Plan</u> must be submitted no later than 9 months from approval of a CDP for the Facility from the California Coastal Commission 2. The 60% Grading and Design Plan must be submitted no later than 18 months after approval of a CDP for the Facility by the California Coastal Commission 3. The final 90% Design Plan must be submitted no later than 6 months from the issuance or waiver of a 401 Certification for the Intertidal Shelf Restoration or, if a 401 Certification is

TASK	DUE DATE
<p>State Lands Commission staff with input from the Steering Committee, that can be used to measure the success of the proposed restoration areas.</p> <ol style="list-style-type: none"> 1. Success criteria must rely on reference sites both within and outside of Bolsa Chica. The reference sites outside of Bolsa Chica must be from elsewhere in the Southern California Bight and must be representative of the habitats the Discharger is establishing within Bolsa Chica. The Discharger shall consult with the State Lands Commission and the Steering Committee prior to selecting the proposed reference sites, which must then be submitted to the Santa Ana Water Board Executive Officer for approval. <p>vii.viii. A report of proposed sediment characteristics that are necessary for successful restoration of the coastal salt marsh habitat on the intertidal shelf based on an investigation at the selected reference sites within the Full Tidal Basin and outside of Bolsa Chica that includes, at a minimum, the following:</p> <ol style="list-style-type: none"> 1. A map that shows the investigation areas and identifies the habitat types and vegetation present at the selected reference sites. 2. Proof of authorization (e.g. permits or letters from responsible agencies indicating permits are unnecessary) for all sediment, vegetation, and habitat investigations. 3. The results of the sediment investigations. 4. Particle size, salinity, moisture content, and organic matter content of the sediment at the mitigation and reference sites. 5. Sources for the sediment to be used to raise elevations on the intertidal shelf and how they will be mixed, if necessary, to attain the particle size and organic matter content determined to be necessary for the restoration area. 6. Volume of sediment necessary to achieve the elevations discussed in section 4.A.ii, above. 7. Sediment evaluation and screening plan to assure that material to be placed on the intertidal shelf is not contaminated. 8. Plan for disposal of or alternative uses at Bolsa Chica for sediment that does not meet the quality standards for use in the intertidal shelf restoration. 	<p>not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for the Intertidal Shelf Restoration</p> <p>4. Any modified or additional success criteria must be submitted to the Santa Ana Water Board no later than 6 months from the issuance or waiver of a 401 Certification for the Intertidal Shelf Restoration or, if a 401 Certification is not required, 6 months from a determination by the Santa Ana Water Board that a 401 Certification is not required for Intertidal Shelf Restoration</p>

TASK	DUE DATE
<p>9. Geotechnical analysis to demonstrate that the materials to be placed can hold the designed slope along the existing edges of the intertidal bar without excessive slumping or erosion.</p> <p>viii-ix. A habitat assessment that investigates the effects of the proposed restoration (including construction access) on sensitive species and habitats, including breeding, nesting, and foraging activities of Belding's savannah sparrow, California least tern, Western snowy plover, and other avian species known to use the area.</p> <p>ix-x. Hydrologic analysis (including any modeling, field work, sampling, etc.) for the excavation and sizing of any tidal channels needed within the coastal salt marsh restoration area to promote water drainage between tidal cycles.</p> <p>B. A 60% design plan developed grading and design plan that includes estimated amount of sediment to be placed within the restoration site that includes:</p> <ul style="list-style-type: none"> i. Details on the methods to be used to locate suitable sediment for the restoration site (including any necessary coordination with the State Lands Commission and the Steering Committee). ii. Methods for meeting the sediment composition requirements as determined from the reference sites and conditions discussed in section 4.C, above. iii. Methods for sediment delivery and placement at the restoration site including: <ul style="list-style-type: none"> 1. Designation of staging areas and sediment stockpile/mixing areas, if needed. 2. Determination and implementation of any internal road improvements after consultation with the State Lands Commission and Steering Committee. 3. Designation and location of any dewatering, if required. If dewatering is necessary, proposed treatment prior to discharge. 4. Assessment and description of any potential post-sediment placement compaction or subsidence that needs to be addressed. 5. Disposal (or alternative use at Bolsa Chica, if approved by State Lands Commission, Steering Committee, and the California Department of Fish and Wildlife) of any sediment deemed unsuitable for use in the intertidal shelf restoration project. iv. Construction and placement of any wave barriers if determined to be required. 	

TASK	DUE DATE
<ul style="list-style-type: none"> 1. If temporary barriers are recommended, the type, location, and duration of placement to be specified. 2. If permanent wave barriers are recommended, the location, areal extent, height, and materials to be specified. 3. Assessment of any potential impacts from the barriers to marine life, tidal hydrology, or success of the other mitigation projects v. Methods for construction of tidal channels if determined to be required. <ul style="list-style-type: none"> 1. Include proposed methods of assessing the effectiveness of the tidal channels and determining if adding new channels or altering existing channels is necessary vi. Identified sources of plant material including species, amount, and size of nursery stock, if any, required for the restoration area. <ul style="list-style-type: none"> 1. Include amount, size, and expected percent cover for the cordgrass, pickleweed, any other plants necessary for the restoration, and—where necessary—the marsh habitat. vii. Planting methods, including timing after construction and appropriate time of year. <ul style="list-style-type: none"> 1. Include anticipated time from initial planting to expected maturity for each species of plant proposed. <u>viii.</u> Best management practices (developed per task 1 with the State Lands Commission and the Steering Committee) that the Discharger will implement to ensure that any sediment is retained on onsite and does not erode, drift, or blow into other adjacent areas. <u>viii-ix.</u> <u>A cost estimate for all components of the project, including, planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> C. A final 90% developed plan incorporating comments from Santa Ana Water Board and the California State Lands Commission with input from the Steering Committee. The plan must include, at a minimum, the following: <ul style="list-style-type: none"> i. Plans, sections, profiles, and construction notes. ii. Storm water management and best management practices iii. An estimated schedule of construction. 	

TASK	DUE DATE
<ul style="list-style-type: none"> iv. The estimated soil volumetric balance. v. A restoration cost estimate- <u>for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> vi. All items discussed in items 4.A through 4.F above, revised as necessary based on comments from agency staff. <p>An implementation plan that includes timelines, schedules, and completion deadlines for the intertidal shelf activities.</p> <p>Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.</p>	
<p>5) The Discharger must submit a creation plan for the Palos Verdes Artificial Reef that will create a minimum of 41.3 acres of rocky reef habitat. At a minimum, the plan must include the following</p> <p>A. A <u>30% design</u> Conceptual Plan that provides the following:</p> <ul style="list-style-type: none"> i. Project description, including reef design and materials (e.g. high vs low reef profiles, proposed rock type for use as substrate, locations and width of any sand channels/ecotonal areas). ii. Overall site plan and determination of area subject to rocky reef habitat created by construction of the artificial reef. iii. Magnitude of rocky reef relief and rugosity for the artificial reef creation including: <ul style="list-style-type: none"> 1. Determination of rocky reef relief and rugosity ranges of natural, functioning rocky reefs in and near the existing SCMI lease area. 2. Estimated volumes and weights (e.g. metric tons) of rock to be used in constructing the reef. 3. Source of rock(s) (e.g. quarries) and plans for transporting rock to and from the site. iv. Expected type and acreage of each habitat, (e.g. high-relief, high-rugosity rocky reef habitat and sand channel ecotonal habitat) that will be created. 	<p>All submittals specified under task 5 shall be submitted in accordance with the schedule listed below</p> <p><i>Interim deadlines</i></p> <p>1. The <u>30% Design</u> Conceptual Plan must be submitted no later than 9 months from approval of a CDP for the Facility from the California Coastal Commission</p>

TASK	DUE DATE
<ul style="list-style-type: none"> v. Depth/bathymetry of reef area and estimation of amount of fine sediments present within the proposed reef footprint where rock will be placed. vi. Construction methods that provide: <ul style="list-style-type: none"> 1. A description of potential sources of rock, how much rock will be required, the methods that will be used to place the rock, and information on verifying rock placement. 2. Information on the methods to monitor the site's conditions (e.g., water quality, marine mammal and sea turtle protection) during construction. 3. Estimates on the timing and duration of the construction. vii. <u>A cost estimate for all components of the project, including, planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> viii. Development and implementation of any additional success criteria, based on new studies or new information, for the proposed reef creation areas that incorporate any recommendations made by the Neutral Third Party Reviewer(s) (see section ix, below) and agency staff. <ul style="list-style-type: none"> 1. Success criteria must rely on reference sites of functional, natural, rocky reefs in the SCMI lease and areas around the Palos Verdes Peninsula. ix. Engagement of neutral third-party reviewer(s) <ul style="list-style-type: none"> 1. After receiving all permits necessary to move forward with constructing the Palos Verdes Artificial reef, the Discharger must engage neutral third-party reviewer(s) to review studies and models and make recommendations to the Santa Ana Water Board. Selection of the neutral third-party reviewer(s) will be subject to approval by the Santa Ana Water Board's Executive Officer. 2. The neutral third-party reviewer(s) will assist in development of success criteria per 5.B.i above and will also provide technical input on reef design, construction, and appropriate reference sites. 3. The neutral third-party reviewer(s) will be also be available to review monitoring reports and provide technical assistance to the Santa Ana Water Board. x. A report documenting the pre-construction conditions using existing data collected in the SCMI lease area under contract to the NOAA Restoration Center/Montrose 	<ul style="list-style-type: none"> 2. The 60% Design Plan must be submitted no later than 18 months after approval of a CDP for the Facility by the California Coastal Commission 3. The final 90% Design Plan must be submitted no later than 6 months from the issuance or waiver of a 401 Certification for the Palos Verdes Artificial Reef or, if a 401 Certification is not required, 6 months from a determination by the Los Angeles Water Board that a 401 Certification is not required for the Palos Verdes Artificial Reef

TASK	DUE DATE
<p>Settlements Restoration Program and California Coastal Conservancy that includes, at a minimum, the following:</p> <ol style="list-style-type: none"> 1. The results of the sediment depth investigation to determine the likelihood of the created reef sinking into the soft sediments. 2. A map of the investigation areas that identifies the habitat types and vegetation present at the reference sites. 3. Characterization of the existing biological resources in the area within the proposed rocky reef habitat creation site and the functional, natural rocky reefs in and near the SCMI lease. 4. Planned rocky reef habitat and rock source and screening plan for creation of the artificial reef to assure that material to be placed within the lease area is not contaminated. 5. An assessment of the baseline conditions for each Palos Verdes Artificial Reef performance standard in Table K-2 below using the adjacent NOAA restoration reef or other rocky reef reference sites in the area approved by the Neutral Third Party Reviewer(s) and agency staff. 6. Any additional biological data (e. g. fish size, and fish richness, diversity, macroalgae recruitment and persistence) for review by Santa Ana Water Board staff. <p>xi. A habitat assessment that investigates the effects of the proposed reef creation (including construction) on sensitive species, including Giant Sea Bass, all abalone species, marine mammals, and sea turtles known to occur in the Southern California Bight.</p> <p>B. A 60% artificial reef design plan <u>for the artificial reef</u> that includes estimated amount of rock to be placed within the reef creation site that includes:</p> <ol style="list-style-type: none"> i. Details on the variable design of the independent reef modules, including the size, location, number, and construction method for each reef module ii. Methods for constructing the independent reef modules. iii. Methods for bringing rock to the reef creation site and placement within the creation site including: <ol style="list-style-type: none"> 1. Designation of source(s) for the rock. 	<p>4. Any modified or additional success criteria must be submitted to the Santa Ana Water Board no later than 6 months from the issuance or waiver of a 401 Certification for the Palos Verdes Artificial Reef or, if a 401 Certification is not required, 6 months from a determination by the Los Angeles Water Board that a 401 Certification is not required for the Palos Verdes Artificial Reef</p>

TASK	DUE DATE
<ul style="list-style-type: none"> 2. Designation of the rock transport process. 3. Designation of any proposed mitigation associated with the rock transport process, e.g., marine mammal and sea turtle monitoring during the transport(s) by barge from Santa Catalina Island or other quarry area. 4. Compaction or expected subsidence following placement of the reef rock to be described. iv. Plans to monitor turbidity, as well as, marine mammal and sea turtle presence during construction. v. An anchoring plan for any barges, tugboats, or other heavy watercraft required for the construction. vi. <u>Anchoring plan environmental survey confirming that no anchors will be placed in or on sensitive habitat including surfgrass, giant kelp, or existing rocky reef.</u> vi.vii. <u>A cost estimate for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> <p>C. A final 90% developed artificial reef plan incorporating comments from the Santa Ana Water Board's Executive Officer, neutral third-party reviewer(s), and agency staff. The plan must include, at a minimum, the following:</p> <ul style="list-style-type: none"> i. Plans, sections, profiles, and construction notes. ii. Storm water management and best management practices. iii. An estimated schedule of construction. iv. The estimated amount of rock to be placed on the reef creation site. v. <u>A cost estimate- for all components of the project, including planning, permitting, construction, operation and maintenance, and monitoring and reporting for the operational life of the Facility.</u> <p>An implementation plan that includes timelines, schedules, and completion deadlines for the Palos Verdes Artificial Reef activities.</p> <p>Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.</p>	

TASK	DUE DATE
<p>6) The Discharger shall submit an Adaptive Management Plan for all facets of the proposed mitigation activities</p> <p>A. The Bolsa Chica Adaptive Management Plan shall, at a minimum, include the following:</p> <ul style="list-style-type: none"> i. A plan to solicit and address California State Lands Commission and Steering Committee input at regular intervals for the operational life of the Facility. ii. A plan to address any changes recommended by the California State Lands Commission with input from the Steering Committee that may result from the ongoing Bolsa Chica Lowlands Restoration Project: Sustainability Alternatives Study to address SLR impacts iii. Evaluation of how SLR scenarios (both the Medium High and H++ scenario) calculated according to Coastal Commission guidance documents (available here: https://www.coastal.ca.gov/climate/slrguidance.html) are likely to affect Bolsa Chica. iv. A plan for corrective actions that will be implemented to meet performance standards or success criteria should functions in Bolsa Chica diminish that includes: <ul style="list-style-type: none"> 1. A description of the process for evaluating shortfalls using the performance standards or success criteria and means for correcting shortfalls through adaptive management. 2. Proposed methods to coordinate corrective actions with the California State Lands Commission with input from the Steering Committee to recover functionality of the mitigation. 3. A remedy for temporal delays that may occur in implementing corrective actions. v. Information regarding the expected frequency of dredging including information regarding sand/sediment disposal during and after dredging. <ul style="list-style-type: none"> 1. Any additional trigger levels recommended by the Bolsa Chica Steering Committee for additional dredging needed to maintain open inlet and minimize tidal muting. 2. Based on above-referenced modeling, a proposed change in the dredging regime needed to address expected changes in sediment volumes, tidal 	<p>All submittals specified under task 6 shall be submitted and approved no later than 24 months from the approval of a CDP for the Facility from the California Coastal Commission</p>

TASK	DUE DATE
<p>circulation, etc., resulting from higher sea levels, wave heights, and storm energy.</p> <ul style="list-style-type: none"> vi. A plan to assess existing performance standards and success criteria periodically to see if they are still applicable given potential changes to Bolsa Chica from SLR or management actions taken by the California State Lands Commission with input from the Steering Committee. vii. Identification of contingency mitigation options to address the following potential occurrences: <ul style="list-style-type: none"> 1. Updated modeling of the effects of the state’s most recent SLR scenarios at the FTB and MTBs (including the oil pad/road restoration components and Fieldstone properties), pursuant to current state guidance. 2. If sufficient mitigation (e.g. due to unsuccessful restoration, or other circumstances resulting in a failure to provide sufficient acreage) is not available at Bolsa Chica to adequately offset the project’s APF. 3. If, due to climate change, SLR, or other impacts (both climate and non-climate related), the proposed mitigation at Bolsa Chica will not succeed for the entire operating life of the proposed Facility. 4. If no feasible remedy for SLR at Bolsa Chica exists, alternative mitigation sites may be considered to offset the lost productivity to SLR. 5. Any additional factors that may impact the success of the proposed mitigation project that may be identified by the California State Lands Commission with input from the Steering Committee or Santa Ana Water Board <p>B. The Palos Verdes Artificial Reef Adaptive Management Plan shall, at a minimum, include the following:</p> <ul style="list-style-type: none"> i. A plan to solicit and address input from staff at California Department of Fish and Wildlife, California Coastal Commission, and Santa Ana Water Board at regular intervals for the operational lifetime of the Facility ii. A plan to solicit and address input from the neutral third-party reviewer(s) (see task 5.C above) at regular intervals for the operational life of the Facility 	

TASK		DUE DATE
<ul style="list-style-type: none"> iii. A plan to assess existing performance standards and success criteria periodically to see if they are still applicable. iv. A plan for corrective actions that will be implemented to meet performance standards or success criteria should functions in the Palos Verdes Artificial Reef diminish that includes the following: <ul style="list-style-type: none"> 1. A description of the process for evaluating shortfalls using the performance standards or success criteria and means for correcting shortfalls through adaptive management. 2. Proposed methods to coordinate corrective actions with the neutral third-party reviewer(s) as well as staff from the agencies listed in task 1.A. (above) to recover functionality of the mitigation. 3. A remedy for temporal delays that may occur in implementing corrective actions. v. A plan to address climate change, including sea level rise, ocean acidification, and any potential impacts resulting from changes in offshore sedimentation. <p>Upon Santa Ana Water Board approval of the above plans and actions, the Discharger shall implement them as approved.</p>		

NOTE: The performance standards from Appendices TT4, HHHHHH, IIIIII, and ZZZZZZ are incorporated into this document by reference. However, they are reproduced below for convenience.

Table K-2

Performance Standard	Performance Measure
<i>Inlet Maintenance Dredging</i>	
Tidal Muting	Tidal muting within the Bolsa Chica Full Tidal Basin shall not be greater than 0.5 meters above 30 day moving spring tide lower low water average (as compared to the fully tidal reference station NOAA 9410660 Los Angeles Outer Harbor) for a period of nine months after completion of inlet maintenance. This standard is subject to revision based on data collected following inlet maintenance activities by the State Lands Commission prior to Poseidon's actions. Any proposed changes are subject to review and approval by the Santa Ana Water Board and may require permit amendment.

Eelgrass: extent	Eelgrass aerial extent shall remain above 100 acres within the Full Tidal Basin, based on a four-year running mean of annual surveys. The annual surveys shall be completed between the months of July-October. Upon review by the Executive Officer, annual surveys may be reduced after five years if eelgrass extent has not exhibited significant change over time. This metric shall be met by a four-point running average of areal extent determined by annual surveys, unless it is determined that regional declines, as compared to performance of similar reference sites, are the likely cause of a decline in eelgrass extent. If eelgrass prior to the project initiation or any time after project initiation show that the extent of eelgrass is below the metric established by this standard, comparison to other eelgrass systems where ongoing measurements have been undertaken (e.g. Pier 300 Basin/Seaplane Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, Newport Harbor) may be used to determine if there are regional changes in eelgrass extent that may be responsible for not meeting the standard. Any proposed changes in the standard will be reviewed and accepted by the Executive Officer.
Eelgrass: density	Prior to inlet maintenance assumption by Poseidon, an initial survey of eelgrass within Bolsa Chica will be undertaken to determine mean eelgrass turion density using the methods in the California Eelgrass Mitigation Program (CEMP). Mean eelgrass turion density within Bolsa Chica Full Tidal Basin shall be not drop more than 20% below that level at $\alpha=0.2$ and $\beta=0.2$ levels. If the turion density is below this level, comparison to other eelgrass systems where ongoing measurements have been undertaken may be used to determine if there are regional changes in eelgrass turion density that may be responsible for not meeting the standard. Any proposed changes in the standard will be reviewed and accepted by the Executive Officer.
WQ: Dissolved Oxygen (DO)	The daily mean shall not fall below 5 mg/L, with no individual measurement falling below 3 mg/L at Bolsa Chica Water Quality Station 1 in the Full Tidal Basin for more than 12 hours. Dissolved oxygen shall be measured continuously at a point as close to the benthos as possible but no greater than 1 m above the bottom. Red tide events, instrument failure or loss, or similar documented unique and uncontrollable event may not be considered as failing to meet the requirement of "no individual measurement falling below 3 mg/L." Instrument failures shall be addressed as quickly as practical. Any uncontrollable event resulting in a DO metric failure shall be subject to review and acceptance by the Executive Officer.
WQ: Salinity	Salinity levels shall not be greater than 38 ppt at Bolsa Chica Water Quality Station 1 in the Full Tidal Basin
<i>For fish performance factors, two out of the three listed below shall be met annually for at least the first three years of inlet dredging. Sampling frequency may be reduced or increased after the initial first three years dependent upon the results of the surveys. Justification for a reduction in sampling frequency must be provided to the Executive Officer for review and approval.</i>	
Fish: Richness	Fish richness in summer months (July-September) shall be greater than 25 species as determined by three replicate purse seine, otter trawl, and beach seine hauls conducted at a minimum of two fisheries stations in the

	Full Tidal Basin following the methods and gear used in the Bolsa Chica monitoring program (2013). No more than 3 repeated sampling events per year may be used to meet this standard and they may not be considered cumulatively (i.e., each sampling event would be treated as a stand-alone sampling effort requiring that at least one effort generate 25 species to be compliant with the metric). If this annual standard is met for four consecutive years following initiation of sampling, monitoring frequency may be reduced subject to approval by the Executive Officer.
Fish: Density	Fish density shall equal or exceed 1 fish/m ² as an average of densities derived from the replicate beach seine and purse seine sampling conducted at a minimum of least two fisheries stations in summer months (July-September), with the average reflecting the gear type results, not cumulative area sampled combination. No more than 3 sampling events may be used to meet this standard and may not be used cumulatively (i.e., each sampling event would be treated as a stand-alone sampling effort requiring that at least one effort generate 25 species to be compliant with the metric). If this annual standard is met for four consecutive years following initiation of sampling, monitoring frequency may be reduced subject to approval by the Executive Officer".
Fish: Diversity	Should one of these criteria not be met, Poseidon shall propose that other reference sites be used where similar data is being collected using similar methodology (e.g. reference sites used for Otay River Estuary Restoration Project monitoring, Batiquitos Lagoon, Agua Hedionda Lagoon, Pier 300 Basin/Seaplane Lagoon). Fish diversity during summer months (July-September) in Bolsa Chica shall not be less than 20% below that of the mean of the reference sites.
<i>Restoration of Fieldstone Property (Task 2)</i>	
Restoration acres	As noted in attachment G.5, the Discharger will restore 4.5 acres of the Fieldstone Property.
<i>Restoration of Oil Pads and Roads (Task 3)</i>	
Restoration acres	As noted in attachment G.5, the Discharger will restore 1.2 acres of the Oil Pads and Roads Property.
<i>Enhancement of Muted Tidal Basins via Improved Water Circulation</i>	
Fish Species Richness	Doubling of the fish species richness within the Muted Tidal Basins as compared to current fish species richness.
<i>Restoration of Intertidal Shelf</i>	
Restoration acres	The Discharger will restore at least 23 acres of coastal salt marsh on the Intertidal Shelf.
Vegetative Cover	At the end of 5 years, vegetative cover on the intertidal shelf should be similar to the coastal salt marsh reference sites. Vegetative cover will be measured using aerial photography.

Tidal inundation	Inundation frequency for each specific habitat type (e.g. low marsh and high marsh) as averaged over the year should be similar to other tidal coastal salt marsh habitats. Inundation frequency will be measured by locally placed tidal monitoring gauges.
Fish: Density	Fish density within the salt marsh vegetation on the intertidal shelf shall be similar to reference locations within Bolsa Chica. Fish density will be measured by using fish traps within the tidal marsh during periods of high tide inundation in the summer months.
<i>Palos Verdes Artificial Reef</i>	
Monitoring frequency may be reduced after the initial first five years dependent upon the results of the surveys. Justification for a reduction in sampling frequency must be provided to the Santa Ana Water Board Executive Officer for review and approval.	
Reef Footprint	Once every two years, a hydrographic survey documenting the reef footprint (acres) will demonstrate at least 90% of the hard substrate placed on the reef remains exposed.
Fish Density	Fish density on the created reef will be similar to the reference reefs in the area.
Fish Species Richness	The total number of fish species will be similar to the reference reefs in the area.
Fish Size	Fish size for non-gamefish species (e.g., Black Perch, Señorita, Halfmoon, Blacksmith, Garibaldi, Pile Perch, Rubberlip Seaperch) on the Palos Verdes Artificial Reef will be similar to the reference reefs in the area.
Fish Production	Fish production calculated using the model in Claisse et al. (2014) will be similar to the reference reefs in the area.
Mobile Macroinvertebrate density	Mobile macroinvertebrate density will be similar to the reference reefs in the area.
Mobile Macroinvertebrate Species Richness	Mobile macroinvertebrate species richness on the Palos Verdes Artificial Reef will be similar to the reference reefs in the area.
Understory Algae	The density and species richness of understory algae on the Palos Verdes Artificial Reef will be similar to the reference reefs in the area. Only reef habitat at least 2 m above the seafloor will be surveyed to avoid effects of shifting sediments and suspended sediments resulting from the historic landslides in the area. Example understory algae includes, but is not limited to: <i>Laminaria farlowii</i> , <i>Laminaria setchellii</i> , <i>Pterygophora californica</i> , <i>Egregia menziesii</i> , <i>Eisenia arborea</i> , <i>Corallina</i> spp., <i>Bosiella</i> spp., and encrusting algae/Crustose coralline algae.
Similarity will be determined using the same method as is used for the Wheeler North Reef (Reed et al. 2020). References to the Wheeler North Artificial Reef in the following text has been replaced by “PVAR” to mean the Palos Verdes Artificial Reef. Evaluating whether the performance of PVAR is similar to that at the two reference reefs requires that the mean (or in some cases the median) value for a given relative performance variable at PVAR not be significantly lower than the mean (or median) value at	

the lower performing of the two reference reefs. We use a one-sample, one-tailed approach for all comparisons. Significance is determined using a method that utilizes both a formal probability value (i.e., p-value) and an effect size. This is generally done by means of a t-test. The performance at PVAR with respect to a given relative performance standard is considered to be worse than the lower of the two reference reefs if the p-value for the comparison is \leq to the proportional effect size (i.e., the proportional difference between the PVAR and the lowest performing reference reef). The only exception to this rule is when both the p-value and the proportional effect size are greater than 0.5, in which case assessment for the period is considered inconclusive. As an example, if the proportional effect size for a given variable was 0.25 (i.e., the mean value at PVAR was 75% of the mean value at the lower of the two reference reefs), then a t-test yielding a p-value ≤ 0.25 would indicate the PVAR did not meet the performance standard, whereas p-values > 0.25 would indicate that it did meet the performance standard. The rationale for using the lower of the two reference reefs is that both reference reefs are considered to be acceptable measures of comparison for PVAR. Hence, if PVAR is performing at least as well as one of the reference reefs, then it should be judged successful.